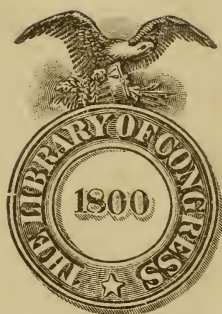


ELEMENTARY PSYCHOLOGY

PHILLIPS



Class BF131

Book P8

Copyright N^o

COPYRIGHT DEPOSIT.

AN ELEMENTARY PSYCHOLOGY

SUGGESTIONS FOR THE INTERPRETATION
OF HUMAN LIFE

BY

D. E. PHILLIPS, PH.D.

HEAD OF THE DEPARTMENT OF PSYCHOLOGY AND EDUCATION
THE UNIVERSITY OF DENVER

GINN AND COMPANY

BOSTON • NEW YORK • CHICAGO • LONDON

COPYRIGHT, 1913, BY D. E. PHILLIPS

ALL RIGHTS RESERVED

513.5

BF131
P5

The Athenæum Press

GINN AND COMPANY · PROPRIETORS · BOSTON · U.S.A.

\$ 1.20
©Cl.A350153

PREFACE

In presenting this volume to the public I am simply seeking to arouse a deeper interest in a general science of far-reaching and practical importance to every individual. During twenty years of experience in starting young students in this science, I have noted the different topics, the chief lines of interest, the oft-repeated questions, the outside material needed to render any satisfaction to the inquiring mind. I am convinced that the problems of deepest interest and some of the most valuable material are not presented in the *subject matter* of the general textbook on psychology. To create a wide and permanent interest in any science is certainly as necessary as to add facts to that science. This volume lays no claim to any great addition to human knowledge. Experience has proved that the fundamental and practical facts of psychology can be made intensely interesting and educative to high-school students and to the general public. There is nothing in this volume that cannot be comprehended by the beginning student to the extent of luring him on and filling him with enthusiasm to know and with a desire to solve the problems of life and conduct. Experience has also proved that it is wise and pedagogically valuable to stimulate interest by giving a wide view of the science, even to the extent of suggesting hidden mysteries and unanswerable questions. It is the stimulus that sets the soul on fire.

The entire new arrangement of subject matter may be justified by the ease and interest of presentation as compared with that order in which the physiological and abstract parts of psychology are first presented. I can only hope that the style, arrangement, and method of treatment will prove as stimulating and interesting to the general reader as they have proved to my own classes. I also believe that some such order will prove to be in every way pedagogical and profitable. The logical order and the pedagogical order are not always the same, as experience has amply shown; therefore, while logical unity has not been ignored, it has been consciously sacrificed to other qualities which are more essential to the purpose of this book.

For the introduction of such material as *Relation of Psychology and Evolution*, *Heredity and Environment*, *Suggestion and Mental Healing*, *Magic and Spiritualism*, *Psychology in Literature*, I offer no apology. The general necessity for some information on these topics, the broad view developed, the permanent interest created, and the better understanding which they give of such common subjects as memory, reason, will, and the entire relation and development of mental life are ample justification for their introduction. The study of psychology requires some knowledge of the leading facts of evolution. To assume such knowledge on the part of the beginning student is a mistake.

Striving for *accurate definitions and distinctions* is to be avoided in the beginning of such a great and necessarily indefinite subject as this. It is dangerous and leads to the greatest disease in all education — *word-learning* without a ghost of a content. An attitude of soul arising from many examples and questions is deemed of more

importance for general purposes than accurate scientific definitions. *The definitions given are tentative and suggestive.*

The omission of the conventional questions and references at the end of each chapter is desirable for three reasons: First, experience and inquiry prove that they are seldom used. Second, the questions are in nowise likely to be such as the student would ask. A better method is to allow perfect freedom of questions and discussion on each topic. It will be found that the suggestions concerning larger problems are such as to call forth many natural questions which the students may be requested to investigate. A list of references is given at the close of the book. Third, such questions have undoubtedly a detrimental effect on the teacher. The extreme form of such ready-made questions was once found in our histories and geographies. When our pedagogy is properly developed, the general reading book will take the place of the formal textbook. Each year's reforms make this more and more apparent.

That I owe much to various authors and publishers for the permission to use certain cuts, I trust is made clear in the text. All references to authors and authority for quotations will be found at the close of the book in an alphabetic list.

Besides my indebtedness to friends for examination and correction of manuscript, I am under special obligations to my colleague Dr. S. A. Lough for valuable help and careful examination of proof; to my assistant, Miss Kate Howland, for critical suggestions and final preparation of manuscript; and to Miss Helen Howland for valuable drawings and indexing.

D. E. P.

CONTENTS

CHAPTER I

	PAGE
FOUNTAINS OF HUMAN CONDUCT	1
THE WILL OR DESIRE TO LIVE	3
INSTINCT AS A FOUNTAIN OF CONDUCT	7
The Migratory Instinct, 8. Striking Instinctive Activities, 10.	
The Social Instinct, 10. Instinct of Reproduction, 12. In-	
stinct and Intelligence, 13. Human Instincts, 14. Definition	
of Instinct, 20.	
IMITATION AS A FOUNTAIN OF HUMAN CONDUCT	23

CHAPTER II

FOUNTAINS OF HUMAN CONDUCT (CONTINUED)	31
HABIT	31
Reflex Action, 31. Wide View of Habit, 35. Habit in the	
Nervous System, 37. Power of Habit and Education, 38.	
The Habit of breaking Habits, 41.	

CHAPTER III

FOUNTAINS OF HUMAN CONDUCT (CONTINUED)	46
FEELINGS AND THEIR DEVELOPMENT	46
Importance of the Feelings, 48. Classification of Feelings and	
Emotions, 51. Chief Characteristics of Feeling, 53. Feel-	
ing and Literature, 64. The Sentiments, 66. Education of	
the Emotions, 69.	

CHAPTER IV

	PAGE
FOUNTAINS OF HUMAN CONDUCT (CONTINUED)	78

APPERCEPTION	78
------------------------	----

Examples of Apperception, 79. Suggested Apperception, 82. Definition of Apperception, 88. Factors determining the Strength and Direction of the Apperceptive Power, 88. Is Apperception a Good or a Bad Thing? 92.

CHAPTER V

RELATION OF PSYCHOLOGY AND EVOLUTION	94
--	----

General Statement, 94. Natural Selection or the Struggle for Existence, 98. Survival of the Present and Survival of the Past, 99. Individual and Collective Survival, 100. Sexual Selection, 102. Sources of Advantages and Variations necessary for Advancement and Survival, 103. Evolution of Language, 106. Time and Change, 110. Evolution of Mind, 111.

CHAPTER VI

THE NERVOUS SYSTEM, ITS FUNCTION, AND EDUCATION	114
---	-----

Divisions of the Nervous System, 115. Importance of the Cerebrum, 116. Composition of the Nervous System, 117. Growth of the Nervous System, 121. Functions of the Different Parts of the Nervous System, 124. Education of the Nervous System, 128. How Knowledge of the Nervous System helps us to interpret Human Life, 131.

CHAPTER VII

SENSATION AND THE DEVELOPMENT OF THE SENSES	134
---	-----

The Stimulus and Nerve Action, 134. Sensation and Perception, 135. The Special Senses and their Adaptation to Stimuli, 136. Sensations arising from the Skin, 139. Sensations of Taste and Smell, 144. Sensations of Smell, 144.

PAGE

Sensations of Hearing, 146. Sensations of Sight, 148. Reaction Time, 153. Subjective Sensations, 155. Quality and Intensity of Sensations and of Sense Perceptions, 155. Practical Significance of these Facts, 159.

CHAPTER VIII

RELATION AND ASSOCIATION OF IDEAS 163

The Rapidity of Thought, 165. The Fundamental Law of Association of Ideas, 167. Laws of Practical Educational Value, 168. Association in Dreams, 176. Practical Results of the Association Method, 178.

CHAPTER IX

FUNCTION AND DEVELOPMENT OF MEMORY AND IMAGINATION 180

Memory and Imagination in Animals, 180. Varieties of Memory, 182. The Physical Basis of Memory, 186. Relation of Imagination and Memory, 188. Strange Visual Images, 189. Values and Dangers of Imagination, 192. The Education of Memory and Imagination, 194. Suggestions for saving Time and Energy, 196. Memory and Court Testimony, 197.

CHAPTER X

PROBLEMS OF HEREDITY AND ENVIRONMENT . . . 199

Meaning of Heredity, 201. Whence come these Hereditary Qualities with which every Child begins Life? 205. We inherit Things only potentially, 208. A Chart to suggest Ideas of Individual Variations, 209. Relation of Environment to Heredity, 211. Education must build on what Nature furnishes, 212.

CHAPTER XI

THE THINKING PROCESS AND ITS DEVELOPMENT . . 214

Degree of Thinking, 214. Thought and Progress, 217. Causes of Inaccurate Reasoning, 218. Proper Positive Education of

the Thinking Process is the Supreme Demand in all Education, 222. The Formation and Development of Concepts, 223. Genius, the Star of Hope, 225. Language and Thought-Discipline, 227.

CHAPTER XII

SUGGESTION AND MENTAL HEALING 232

Degrees of Suggestibility, 233. History of Hypnotic Phenomena, 236. How Increased Suggestibility, called Hypnosis, is produced, 238. Phenomena of Hypnotic Suggestion, 239. Popular Errors concerning Hypnotic Suggestion, 240. Our Mental Life outside the Stream of Consciousness, 243. Hidden Powers of Men, 247. Mental Healing, 249. Normal and Abnormal Psychology, 253.

CHAPTER XIII

SOCIAL PSYCHOLOGY 257

Importance of Social Psychology, 257. What is meant by Social-Mind, 258. The Suggestibility and Credulity of Crowds, 260. The Successful Leader of Crowds, 262. The School as the Only Hope for Political Education, 262. A Few General Conclusions, 264.

CHAPTER XIV

WILL, FREEDOM, AND EDUCATION 267

Biological and Evolutionary Investigations, 268. Kinds and Sources of Human Action, 268. Volition appears to direct Thoughts and Feelings as well as to inaugurate Action, 273. Deliberation is the Conflict of Ideas and Feelings behind which lie the Instincts, Habits, and Past Experiences of the Individual, 275. Education and Freedom, 276. Common Evasions of the Problem, 278. Feeling of Freedom, 279. Ways of conceiving Freedom, 282. The Moral Aspect, 284.

CHAPTER XV

MAGIC AND SPIRITUALISM 287

Historic Development, 287. Necessity for Knowledge on these Topics, 288. Interrelation of Magic and Spiritualism, 289.

CONTENTS

xi

High Points in the History of Magic, 291. A Few Explanations of Magic, 293. Spiritualism, 296. PAGE

CHAPTER XVI

PSYCHOLOGY IN LITERATURE, MUSIC, AND ART . . 303

Inadequacy of the Present System, 304. Laws of Grammar, Literature, and Art, 305. Simple Psychic Elements in Literature, 307. The First Necessity for either the Production or the Appreciation of Literature and Art is Soul-Freedom, 311. Symbolic and Figurative, or Psychological, Nature of Characters in Literature, 313. Reading into Literature what is not there, 317. The Psychic Atmosphere about Literature and Art, 319. By what Standard shall we judge Literature and Art? 320. Music and Art, 322.

CHAPTER XVII

REFLECTIONS ON THIS HUMAN CONFLICT 325

Summary of Previous Pages, 325. Pursuit of Happiness is everywhere the End of Action so far as it is directed by Consciousness of the Individual, 327. Human Life is inconsistent and contradictory, 330. Needed Reforms in our Moral Education, 333.

INDEX OF AUTHORS 343

INDEX 345

AN ELEMENTARY PSYCHOLOGY

SUGGESTIONS FOR THE INTERPRETATION OF HUMAN LIFE

CHAPTER I

FOUNTAINS OF HUMAN CONDUCT

I. THE WILL TO LIVE. II. INSTINCT.

III. IMITATION

The average man, as he journeys on the bosom of a mighty river winding through mountains and valleys, comprehends not and thinks little of the many thousands of fountains, subterranean and otherwise, that combine to produce this sublime piece of nature. So human life is a majestic river that ever bears us on to the hidden sea of eternity. Few are the souls that stop to discover the fountains from which it is fed, and the combinations of forces that are manifest before our eyes every day. Indeed many, either through sheer aversion to all effort to solve the problems of life or on account of some dogma staring them in the face, say we should not attempt to discover these fountains. They say it is not only useless but impossible. In this chapter our aims are simple and unpretentious. With morbid daily introspection and self-cross-examination we have no sympathy, and with the

origin and deepest nature of life we are not concerned. The ultimate nature of motion which produces the phenomena of thunder and lightning no man knows. Yet our investigations in this line have not exactly been a failure. Is there any good reason why we should not have driven superstition and night from the clouds, revealed the nature of thunder and lightning, and harnessed electricity to do our work, even if we cannot know the nature of the Eternal Energy lying behind such phenomena? Why should a physician inquire into the ancestry of the mentally unbalanced? Every act of life has its ancestors, and only by some knowledge of these past forces which compel present action shall we ever properly comprehend and treat crime aright, shall we ever abstain from harsh and unjust judgments, shall we ever, even partially, obey the injunction "judge not," or exercise "charity toward all men."

In order to secure an adequate comprehension of the so-called higher powers of man and all their various combinations, it is necessary to give passing attention to at least six of these hidden Fountains of Conduct. These are (1) The Will or Desire to Live; (2) Instinct; (3) Imitation; (4) Habit; (5) Feelings; (6) Apperception. Some of these will be taken up again for further consideration, but we must first have sufficient comprehension of these six forces to be able to discover their manifestations and power in general psychological phenomena. Without some knowledge of the force and extent of these streams always pouring into our daily conduct, how shall we fathom even the simplest affairs of human life?

This division is only a method of presenting as forcibly as possible a few ideas. There is no intention of suggesting

that six is the limit. The number and combinations are certainly beyond our power to catalogue as yet. Nor is there anything involved in this conception akin to the old faculty psychology, which distinctly separated the powers of the soul. *Throughout this work soul is used as synonymous with the sum total of all psychic experiences, activities, feelings, and possibilities of man.* Let us look at a few facts which any observer of life can comprehend.

I. THE WILL OR DESIRE TO LIVE

Look about you! On every hand observe the whole wide world teeming with the various forms of life. See the millions of insects and other animals, high and low, big and little, as soon as born, ever thirsting for growth, for development, for more life; ever struggling for food, to escape death, and to propagate their kind as if the whole world depended upon it. See the wonderful adjustments the ages have produced to meet conditions, lest life in any line should come to an end. See how human beings cling to life under any conditions and at any cost. What is the one common element that lies in plain view as the prompter of all these activities, manifesting itself in a million forms and at every moment? Ask a class of thirty or forty healthy men and women why they live. At first they are almost sure to give the proper answer—laugh as if it needed no answer. But soon that false psychology which hopes to explain life and conduct from the so-called rational element in man, as if distinct from everything else, produces an array of apparent reasons why we *live* and *should live*. These old psychologists would almost make us

believe that we *reason* ourselves into and out of *existence*. Animals, they say, may live by force of impulse or instinct; man lives by reason. How necessary that we first learn something of the fountains of life that constantly prompt our reason, memory, imagination, etc., before we begin to talk blindly about these powers of man. The correct answer was in the laugh, and our speculations about why we live are quite superficial. *We live because we cannot help it*; because that insatiable thirst for life, more life, which fills the earth with countless millions of organisms, pushes us on. Was it any speculations about life that kept the countless millions of savages and animals struggling? Or did the force that for ages kept and still keeps the rest of creation going, step aside for us when some convention of men met and told us why we *should live*, and made us *afraid* of death? By no means. At best man's speculations have produced only minor modifications. *The first great fountain of human conduct is this same universal, ever-present desire to live*. With our present advance of knowledge it seems incredible that any one's powers of observation should be so blunted by theory as not to see this great biological law. Give your attention to these astounding facts.

The Will to Live, as the background of life already briefly suggested, is so closely related to the instincts that it might, from one standpoint, be called *the fundamental instinct*. At least it stands in such relation to all others that no instincts and no fundamentals in evolution, such as the Struggle for Existence, could be conceived without it. One is never more amazed than when he beholds some of the hard conditions under which life,

animal and vegetable, is maintained, and the tools with which organisms are provided to meet these conditions. The different forms of organic life not only possess astounding equipments and manifest marvelous activities for warding off danger and preserving life against the many destructive elements, but they also show the most marvelous and constant manifestation of an inner, active tendency to further life and bring it to the highest degree possible.

Perhaps you already know something of the smallest unit of life — the cell. Its complexity, the activities that go on within it, and its division into two cells in order to further its own growth — these are in reality among the wonders of life; yet they are all prompted by this impulse common to all living things. Again, germ cells are often capable of considerable movement in order to unite for furthering life; some organisms that live in water move only by changing their weight by mixing two liquids or gases, or by squeezing out air. Scarcity of food, lack of proper moisture, unfavorable temperature, are overcome in thousands of organisms by bringing the life processes practically to a standstill until the conditions are again favorable. In many cases the impulse to live is so strong that almost any part of the organism develops into a complete individual. The *Nais* cut into many pieces develops as many individuals; in the case of the *Lumbricus*, each stump generates a head and lives as an individual; mere fragments of the sea urchin's egg grow into complete eggs; each piece of the hydra becomes a new organism. *The will to live* is behind all this activity. Everything strives toward existence, toward life, then toward the highest forms of life.

These few facts of the lower biological world are only mentioned to give some notion of the extent and intensity of this universal impulse. Countless thousands might be added, but for psychological material the common observations of life are ample. I am sometimes astounded by the well-known fact that sweet peas struggle on for months to produce flowers and seeds if the flowers be continually cut; otherwise they cease to bloom. It is also true that fowls will lay many more eggs before setting if the eggs are removed from the nest. This same desire for life is only keener and more intensified in human nature. This desire to live feeds on the life of other organisms and even on human beings, that it may maintain itself. From one standpoint it converts the world into an immense slaughterhouse. In these and numerous other facts any observer may discover the force of *the will to live, either for the individual or for the species.*

On the other hand, we see how the will to live struggles in behalf of the species. The true meaning of everything seems to lie in the care for and perpetuation of the species. The supreme efforts and energy of all living things, man included, are directed by the desire to live and to care for the young. We often see a mother clinging against all hope to physically and intellectually defective children, or sacrificing her life in order to preserve that of her children. All this takes place not because we have reasoned out the value of life, but because of the inner nature of life itself — the universal desire for life.

II. INSTINCT AS A FOUNTAIN OF CONDUCT

Give me your explanation of instinct and I will tell you your philosophy of the universe. However, in this presentation we shall not deal with any explanation, but only with practical applications of instinct as one of the fountains of human conduct. Broad reading and many examples with an imaginary application to conditions develop an attitude of mind not easily expressed in concise definitions, but far superior to the ordinary brain-racking, hairsplitting definition process.

If I were to give you a great number of pieces of paper varying from intense blackness to snow-whiteness and ask you to classify them into black and white, you would be able to select readily those at the extreme ends of the series. Yet if you should be required to begin at either end and pass through the series, you would find many doubtful cases, and be unable to decide anything without contrasting with the extreme ends.

It may be possible for some trained eyes to detect three thousand shades of color, but we have comparatively few names to designate these slight variations. From the lowest plant life, consisting of a single microscopic cell and of activities discernible only under the microscope, up to that fullness of life manifested in the highest specimens of man, we have as yet been able to name only a few rounds on the ladder. A striking illustration is found in the growth of any individual. Infancy, childhood, youth, manhood, and old age have definite meanings for us when taken in their large aspects. But just when did we pass from infancy to childhood, from childhood to youth? This same difficulty

will be found in dealing with all the psychic activities of man. The intellect forms its clearest ideas of things by considering them as discontinuous; but that is due to our habits of conceiving things, and not necessarily to the things themselves. This idea is fundamental for any profitable study of psychology.

In the study of animal activities we may begin with the simplest reflex actions, such as are found in protoplasm, pass to the more and more complex reflex processes, from these arbitrarily into simple instinctive actions, thence to the highly complex and astonishing instincts. Now by another arbitrary process we leap across the border line between instinct and reason, or accept a mixture of the two, and finally arrive at the most colossal monuments of human reason. In this wonderful gradation of mind activities there are many points where the classification must depend almost wholly on some arbitrary definition. As gradual and as imperceptible as a delicate change of colors on an evening sky are these changes, when all of the phenomena are arranged in proper order. Abandon any idea of a definition until we examine many of the activities usually included under instinct.

The Migratory Instinct has been extensively studied. Many birds like the swallow, the cuckoo, the nightingale, the redwing, the fieldfare, the sanderling, the turnstone, the plover, the knot, the duck, the goose, and others migrate north or south according to season. The distance traveled sometimes exceeds seven thousand miles. The sanderling nests in Iceland, and in winter has been found as far south as Cape Colony. The turnstone nests in

Greenland or on the coast of Scandinavia, and winters in Australia, South America, etc. The American golden plover breeds in arctic regions from Alaska to Greenland, but in autumn passes through Nova Scotia, and striking boldly out to sea, sails on over the ocean until it reaches the West Indies. Although the routes traveled are not always the same, yet there can be no doubt that birds return to the very spot from whence they started six months before. They have often been known to fly at a height estimated from one to three miles. But the instinct is not confined to birds. President Jordan gives the remarkable case of the fur seal, which twice a year makes a journey of nearly three thousand miles, through a trackless, stormy, foggy sea, from the Pribilof Islands to the Santa Barbara Islands. The seals arrive at their destination seldom too early or too late, and land at the same place each year. The mother seal often leaves her young near the shore and goes two hundred miles in search of food, and returning in a week or two, finds them. She knows her young amidst ten thousand other young and they know her. The homing instinct of the cat is so well known as to have been famed in song. Some reptiles are said to possess it in a high degree. Romanes gives a case of a pet snake stolen from Dr. Vigot during the French invasion of Madras and carried in a carriage over one hundred miles. After some time the snake found its way home. It has now been proved that the homing ability of the bee is independent of sight and sound. We are told that the wandering savage, traveling in the trackless forest, possesses this instinctive sense of direction to a certain degree. The migratory impulse is seen in the roving youth.

Striking Instinctive Activities. The horsefly lays its eggs on the shoulders or legs of the horse; they are then bitten off by the horse and the larva matures in the digestive tract. Some species of wasps sting their prey so as to paralyze it without killing it, but different species vary their stinging according to the insects on which they prey. Some prey upon spiders, beetles, and caterpillars, which they reduce to a motionless condition for a certain number of days, thus furnishing the newly hatched young with fresh meat. The yellow-winged sphex has three pairs of nerves that govern its legs. These are each stung by the wasp in proper order. Another species stings its prey nine successive times in nine nerve centers.

How wonderful is that apparently wise little beetle, the *sitaris*! It lays its eggs at the mouth of an underground passage of a species of bee. After hatching, the larva waits until it can fasten itself upon the back of the male bee as he goes out, and clings there until the "wedding flight," when it passes from the male to the female. Here it stays until the eggs are laid, and finally it attaches itself to the egg, devours it in a few days, and rests in the shell for protection while it undergoes further transformation.

The Social Instinct. Among animals that display a remarkable mixture of instinct and intelligence are the beavers. They live in towns, but each male lives with his female in his own house. At three years of age the young seek their mates and establish homes for themselves. Their homes are constructed with great mechanical and artistic skill. Some years ago I traveled several miles up a Rocky Mountain stream in order to reach one of these

beaver towns. The animals displayed sense and forethought in selecting a site, both as to food and natural defense. High up against the mountain side I sawed off the remaining stumps of trees cut down by the beavers. From their homes I brought many varying lengths of wood, the lengths having a marked relation to the thickness of the timber. They often fell a tree so as to submerge the limbs and branches in the water, thus preserving it for winter food. Their dams and canals for floating down their wood are nothing short of psychological puzzles for the student of comparative psychology. Agassiz estimated one beaver dam to have been about one thousand years old. They often build a second dam below the main one, apparently as a precaution.

The marvelous instinct of bees and ants is well known. Some species of ants keep slaves that do all the work and even feed their masters. When they migrate the slaves take the lead. The slave-making ants know one thing well — how to make war in an effective, systematic way. The whole nest marches out as one army against the ants they would enslave. Even the mildest things that are related about these campaigns, such as the care of the dead, etc., are sufficient to excite intense interest and disturb many cherished theories. Various species of ants keep aphides, which supply them with a nutritive secretion. Some of the leaf-cutting ants of the Amazon River district make use of certain leaf bugs as slaves and compel them to carry the leaves they cut to their nest. Then the bugs are shut up in the colony. The practical application and relation of these activities to human conduct and intelligence will appear in later chapters.

Instinct of Reproduction. It is not our purpose to give a catalogued list of animal instincts, but rather to form a background sufficient to show how instinct becomes one of the fountains of human life, and influences human conduct and reason. To this end, consider the wonderful operation of instinct in connection with mating, reproduction, and the rearing of the young. Later we shall consider the complicated and far-reaching import of sexual selection. During the mating season many animals, especially the males, take on beautiful and brilliant colors and select a mate, usually for the season, but often for life, as in the case of the beaver, the ostrich, the stork. The pairing is often preceded by strange preliminaries designated by naturalists as courtship. In an article on "The Lines and Laws of North American Birds," the pairing of several species is shown to be at least coincident with a maximum of "music and dancing." Evans says the final purpose of the nutritive impulse, and all secondary impulses, is the preservation of the species. "Seeking food, fighting foes, forming friendships, sexual attraction, care of offspring, social feelings, love, hatred, fear, jealousy, cruelty, kindness, revenge, deceit — all tend to this great end."

Some of the species of the cuckoo seem to have a perverted instinct. They do not build a nest, but lay their eggs in other birds' nests. The eggs are now left to be hatched by the foster mother. But should there also be hatched any of the rightful heirs to the nest, the young cuckoo gets rid of them in a very curious way — by crowding them out of the nest to die. There are also several other birds that possess this parasitic instinct.

Instinct and Intelligence. So astounding are the activities connected with the rearing of the young in the animal kingdom that it seems utterly impossible to explain all without introducing an element of intelligence. I shall now call attention to a few of these and to some other activities that demand the thoughtful consideration of every student of psychology. Wild ducks, larks, whip-poorwills, and many other birds, being surprised near their young, will cry aloud, feign lameness, and flutter along in front of you, solely to attract attention from their young. In a similar manner the doe and hind attract the hunter or dog in the opposite direction. When pursued by the hunter the sea otter dives with her young, and coming to the surface for air, she hides them and receives the hunter's shot. The immense seals that live near New Zealand swim in herds and observe certain tactics because of the terrible enemies of the deep. The females bring forth their offspring on shore. While they are suckling them, which lasts some seven or eight weeks, the males form a circle around the young and their mothers, lest the mothers, driven by hunger, should enter the sea. They bite the females should they attempt to enter the water. Thus all fast for weeks lest the offspring should enter the sea before they are able to swim and observe the necessary precautions. Many animals such as the crow, raven, stork, turkey, beaver, wild dog, deer, monkey, zebra, and wild horse, post sentinels who warn the rest of approaching danger. Before migrating, some animals send scouts to ascertain conditions as to danger and food supply. The zebra and ostrich are often companions, not through friendship but because the zebra profits by the ability of the

ostrich to scent approaching danger. Jabson, in speaking of the emotional element in monkeys, says that when one of his party would shoot an orang-utan from the boat, the body was carried off by the others before his men could reach the shore. Forbes tells how thirty-four monkeys attacked a cabin, apparently begging for the dead body of one of their tribe, and would not be pacified until it was delivered; and the men who witnessed it resolved never again to fire at a monkey. Without doubt many of the higher animals exhibit sympathy, fidelity, vengeance, pride, jealousy, curiosity, teasing, a sense of joy, imitation, sometimes almost to the extent of being dramatic.

Human Instincts. Having briefly presented some notion of instinct in animal life, let us see what connection it has with the psychology of man. Shall we agree with the older psychologists and theologians that animals are governed by instinct, man by intelligence? Or will not even a careless observation of human life confirm James's statement that man has all the instincts of all the animals plus a great many more; he has so many they block each other's way? Every biological investigation of life reveals the great power of instinct in human conduct both individual and social. Whenever we seek for the primary forces behind memory, imagination, attention, interest, the rise and decline of an emotion, will power, social activity of any kind, we are always sure to discover one or more instincts as one of the fundamental factors. Watch the power and manifestation of the child-imagination in connection with the play instinct, and the flights of the poet-imagination under the sway of the love impulse. Let the

reader honestly describe the nature of the thing he most readily remembers and then answer why. See how interest always has as a bed rock some instinct either relating to the individual's present or remote welfare. Strong emotions of fear are produced by slight stimuli. A lost pig running by my house may call forth a sense of humor, but a lost child fills me with indescribable pity and produces will power to act in its behalf. The latter appeals to a deep instinct which has developed a strong parental feeling and sympathy. Even in the intellectual giants of the world you find the power of the instinctive thirst for leadership, fame, or curiosity ever spurring them on; and often, like Goethe, they must proclaim, "I write because I cannot help it." The instinct for social preferment, to have, to hoard, and to possess, the love impulse, the sexual instinct, the instinct of self-gratification and of self-preservation, the play instinct, and others, are wrought so deep in human society that even the powerful instinct to conceal them is not sufficient to hide them from view. Birds build nests and sing songs to their young, we build houses and schools; animals lie in wait for their prey, we form intrigues.

1. *Sexual instinct.* As already stated, some authorities would reduce all instincts to two or three general ones with their mixed and modified forms. Drummond thinks everything may be reduced to the instincts of *nutrition* or *self-preservation*, and that of *reproduction*. For practical purposes we must examine the more specific forms. The reproductive instinct is certainly one of the main powers behind life, and manifests itself in many forms and various combinations. Perhaps no one has so well presented the

strength and especially the unconscious manifestations of this instinct in human life as Schopenhauer in his rather poetic chapter on "The Life of the Species." He describes its great power in animals; shows how it is even greater in man but directed in regard to ways and means by reason; how it triumphs over self-love and even extends to the sacrifice of life itself. Speaking of the important *rôle* which the relation of the sexes plays in the world of man, he says: "It is really the invisible central point of all action and all conduct, and peeps out everywhere in spite of all veils thrown over it. It is the cause of war and the end of peace, the basis of what is serious and the aim of the jest, the inexhaustible source of wit, the key to all allusions, and the meaning of all mysterious hints, of all unspoken offers, and all stolen glances. . . . It is, however, the piquant element and the joke of life that the chief concern of all men is secretly pursued and ostensibly ignored as much as possible. But, in fact, we see it every moment seat itself, as the true and hereditary lord of the world, out of the fullness of its own strength, upon the ancestral throne, and looking down from thence with scornful glances, laughs at the preparations which have been made to bind it, imprison it, or at least to limit and, wherever it is possible, to keep it concealed, or even so to master it that it shall only appear as a subordinate, secondary concern of life."

For the wide scientific view of this instinct we must become familiar with Dr. Hall's great work on "Adolescence." Here he shows how love sensitizes the soul to the influences of nature, and thereby becomes a great factor in the evolution of art, literature, and natural religion; how it develops

into a great multiplicity of sentiments and actions ; how it radiates or, so to speak, gets behind the love of race or enthusiasm for humanity and the thirst for knowledge.

Only get the absolute facts from a boy or girl during the golden age of this instinct and you find everything else subordinated to it. Ask the young man why he is struggling under such difficulties to complete his education. He will probably say at first that he wants a job. But, my promising lad, why do you want a job? Have you not something beyond this to which your job only serves as a means? The psychological observer cannot help but be amazed at the success with which the average adolescent conceals his or her real motives even from parents. Finally, my readers, just as we shall never make any substantial progress toward the solution of the moral problems of life until we learn how to regulate this instinct that exalts to heaven and debases to hell, so we will never be able to comprehend two thirds of human conduct until we realize the depth and power of this biological impulse.

2. *Parental instinct.* Parental care is the most direct radiation or completion and extension of the sexual instinct. It has been developed in all the higher animals and in some to a very marked degree. This instinct is certainly stronger in women than in men. It would be impossible to find in the whole domain of psychology such direct evidence of the creation of will power by instinct as may be seen in the transition of a frivolous, frolicsome, selfish, irritable, impatient girl into a patient, thoughtful, self-sacrificing mother. The apparent miracle, the creation of will power, apparently out of nothing, the complete reversal

of her reasoning processes, are all due to the turning loose of an instinct as old as the first animal mother. Then, like Tolstoi's Anna, she thinks she has found her real self, and is glad to face even death to further the life of her offspring.

3. *Fear instinct.* Fear seems to be wrought into our bones. It is one of the oldest elements of the human soul. It shows its powers early in the deep-seated childish fears ; it is with us in some form until the dreaded grave swallows us up. Fear comes in conflict with other instincts, such as anger, pugnacity, initiative, curiosity, sexual instinct, thus producing a strain and hesitation. This hesitation is produced in the higher animals as well as in man. There are many instinctive fears, but in man, under certain circumstances, the general instinctive tendency to fear may take almost any form. When we contrast our fears with those of the primitive savage we see one great difference between the animal and human instincts — *plasticity due to intelligence*. Intelligence and civilization have removed many of the original causes of fear, but they have also given us others, perhaps of a milder form. We have arrived at a point where the *dread of disease* has become an important practical problem of science. There is an old saying that the plague hath slain its thousands, but the fear of the plague its tens of thousands. Behold men and women ever haunted by some fear of disease, of loss of property, of social standing, of positions, of friends, fear of being found out, fear lest sacred beliefs crumble in the dust and all the world be lost, fear of some false doctrine, of desertion even by those who love them most, of approaching old age and death. Truly it seems that man is born, lives, and dies in a state of fear.

On the other hand, fear is one of the greatest educators in the world. To fear aright is invaluable to both animals and man. All kinds of enemies assail us to do us physical, economic, intellectual, and moral harm. Proper fear in the form of anticipatory pain is often our only protection. In childhood the memory of physical pain acts as an inhibitory force. Later the fear of mere negative consequences gradually develops into, or is supplemented by, the fear of losing the positive good in the form of a reward. This fear acts as a constant stimulus on all of us. Moral life and regularity of conduct would be in great danger of shipwreck if it were not for the fear of social blame. Fear of future consequences to humanity has helped to fill the hearts of reformers with enthusiasm for their cause.

4. *Property instinct.* That animal inheritance and the long struggles of primitive man to sustain life have handed down to us a genuine instinct to hoard, to have, and to possess is now absolutely evident. The kleptomaniac who steals solely for the sake of stealing is the most animal-like manifestation of this hoarding instinct; but from the kleptomaniac all the way up to the man who desires the world, even though the intellect presents various reasons for his conduct, there is no sharp line of separation. Furthermore, this instinctive power is never absent in the hoarding of wealth. It is always fertilizing the intellect with motives. We cannot doubt the force of Schopenhauer's remark that selfishness often beguiles a man into believing that he is serving others when in reality he is prompted to service by his own instinctive tendencies.

The purpose of this work will not permit a more extended presentation of the large number of human instincts

not yet mentioned. We may only call attention to such as the play instinct, which has great significance and value for man ; curiosity, the spur of the intellect ; social instinct, giving the proper soil for the formation of cliques, groups, organizations, society, the mob ; jealousy, sympathy, pity, modesty, cleanliness, hunting, fighting, anger, and many physical activities of children, such as crying, sucking, biting, clasping, — these are all instinctive activities, furnishing a part of the *hidden fountains of human life*.

Definition of Instinct. A vast number of definitions might be culled from books. They vary from the apparently simple statement of Dr. Brinton that “instinct is nothing but petrified habit,” to the more elaborate and well-scrutinized definitions, such as Mr. Morgan’s statement that “instincts are congenital, adaptive, and coördinated activities of relative complexity, and involving the behaviour of the organism as a whole.”

James gives us a very clear and comprehensive definition : “*Instinct*,” he says, “*is the faculty of acting in such a way as to produce certain ends, without foresight of the ends, and without previous education in the performance.*” I have no inclination to criticize definitions. Such criticism is unprofitable and narrowing. The great variety of definitions indicates the difficulties of the subject with which we deal. A brief summary and a few general statements concerning *instincts* may be of more service than definitions and may lead to a clearer idea of the subject.

1. All instinctive tendencies are first manifested as impulses, but not all impulses are instincts, because many impulses may be individual, while *instinctive impulses*

belong to a whole group or species. For example, impulsive suicide is not an instinct, even though it be, as Ribot suggests, a perverted instinct. It is too individualistic to be classed as an instinct.

2. The strength of these innate tendencies and instincts varies in different individuals and in different races, and they are favored or checked in their development in proportion to their original strength, according to the degree of intellectual development and to the different environmental conditions. This difference in original strength of these tendencies and in the favorable or unfavorable conditions, taken in totality, accounts for all the differences among men.

3. These instinctive reactions may be produced by direct perception of the objects or by ideas of the objects, and, through the association of ideas, by quite different ideas. Thus in man many instincts may be aroused at the same time.

4. Largely through imitation and habit instinctive tendencies become crystallized about certain related groups of objects or ideas.

5. The *time order* of the appearance of the various instincts is not so regular or so well marked in man as in animals.

6. The manifestation of the many powerful emotional instincts of adolescence is often entirely overlooked or inadequately conceived because of the *intellectual* power accompanying them and once supposed to have the right of way.

7. Instincts that, under normal conditions, appear, run their course, and give way to others may often be confirmed by habit; others may be entirely suppressed. Even instinct is not so persistent as is commonly supposed. The individual

may inherit the potentiality, but soon loses it if not stimulated at the right time. An incubator chick does not follow a hen any sooner than it follows other animals. Goslings and ducks kept away from the water for a few months after hatching lose their instinctive tendency for water and even fear it.

8. Undue alarm is often felt concerning supposed detrimental instincts that appear, but simply have their fling, wane in strength, or almost suddenly disappear. However, we do not mean to say that such tendencies should be entirely neglected. Abnormal forms of instincts that need the most skilled treatment may occasionally appear and milder forms may be persisted in too long. Dramatic, imaginative lying, fighting, the destructive craze often of an apparently cruel nature, spasmodic hoarding or stealing, pride, easily confirmed by imitation and habit, these and many others are usually of the nature above mentioned.

9. As before noted, instincts often contradict each other, thus causing a conflict and hesitation in conduct, indeed, often producing contradictory characters and apparent hypocrites. A man possessed of a strong desire to have and to hold this world's goods, and also possessed of an intense desire for social preferment, finds it difficult to act with any degree of consistency.

10. As manifested in man, after the first brief period of life and after experience, *instinct is neither blind nor without variation; and while intelligence may guide as to ways and means, we must not, in general, assume it to be the cause of action.*

11. Lastly, instinct is the basis of the emotional life and consequently of character, as we shall prove later.

III. IMITATION AS A FOUNTAIN OF HUMAN CONDUCT

So universal and important is the instinct to imitate, —important not only in its relation to all the other instincts, but also to all the activities of life, — that without special consideration of it, one of the greatest factors of human conduct will remain hidden from us, and we will ever be wanting a key to many of the problems of life. Look at the great world, everywhere teeming with life; nearly every form of conscious life tends to respond in a similar way to some other form of conscious life round about it. The early activities of most of the higher animals, and especially of the human animal, whether they be movements, cries, or whatnot, are mainly imitations of the corresponding kind of life surrounding them. Morgan points out the important place which imitation plays in the animal world and shows how it takes the place of many apparently specific instincts. This strong instinctive tendency is usually without any conscious intention.

There is some difference of opinion as to whether imitation should be regarded as an instinct. James, Baldwin, and many other writers consider it an instinct. James says, "This sort of intelligence is possessed by man in common with other gregarious animals, and is an instinct in the fullest sense of the term." A careful and distinguished recent writer, McDougall, so defines instinct as to exclude imitation. One objection his definition raises is that imitative actions are so extremely varied that there is no specific movement or end. His chief objection is that there is no common feeling-state underlying all these

varieties of imitative action. This would bring it in conflict with his definition which requires an instinct to have a definite feeling-state. But certainly imitation is rarely guided by intelligence; it cannot be explained under reflex action; no previous education is needed for its application; it is an inherent tendency to repeat the actions of the other individuals of the same species, and is frequently strong enough to extend to the imitation of other species.

This instinct differs from the others in that it joins its power to any and all the other instincts, modifying and fixing them in conformity to the older activities then in vogue, whenever the conflict is not too great. Its end is correspondence, uniformity; it manifests itself in two forms — *conscious* and *unconscious*. So powerful is *unconscious imitation* that even conscious effort not to imitate often avails nothing, such as our efforts not to absorb the undesirable habits and customs of people with whom we come in contact. Even the simple things, like the movements and positions of the head, walking, talking, yawning, laughing, stammering, and stuttering are often spread by imitation, even against determined effort to ward them off. Quite unconsciously we acquire what once seemed to us strange and peculiar accents and variations of speech. Certain gestures may spread through a whole nation. Phrases and forms of prayers are often extensively imitated.

The keen observation of Aristotle led him to declare that man is the most imitative of all the animals, that "imitation is innate in men from childhood." Darwin was astonished at the imitative power of the Fuegians,

who, "as often as we coughed or yawned, or made any odd motion, . . . immediately imitated us." Even insanity may be imitated to the extent of becoming real in the person imitating it. The French have a special word to designate such insanity. If unconscious imitation were not so common as not to attract attention, it would appeal to us as one of the wonders of life. An act is performed in the presence of another organism, or a sound is uttered, and then, without any desire to imitate it or any consciousness of the power that presides over it, the appropriate nervous and muscular action follows. One of the rules of simple morals is—do yourself what you wish children to do, and do it without comment.

The first principle in training feeble-minded and idiotic children is appeal to this *fountain of human life*. Place yourself on a level with them and do the simple things most natural for them to do in their state of development, gradually rising higher and higher. In a very large degree the development and training of animals depend upon their instinctive tendency to imitate other trained animals and the trainer. I once saw several horses in training for the first time. I was perfectly astounded at the readiness with which they imitated the acts of the regulars and even of the circus manager. So powerful is this instinct to act in conformity to others, that the wild children that have been found with animals went on all fours, growled, and acted like the animals with which they lived. Some dozen or more of such children have been found. Some years ago two noted specimens, supposed to be twelve or fourteen years old, were found and brought to London. Both went on hands and feet and growled like animals.

This power of imitation, seated on the throne beside its helpmate, *habit*, presides over the general trend of human activity and directs for better or worse the destiny of millions. It is the indirect agent in the formation of the life and character of the child; it seizes a whole organization, crowd, or nation of people; it is one of the powerful factors in preserving the customs and traditions of the ages; it establishes fashions, creates constitutions and laws, helps to spread religion and education. Character is largely unconscious *imitative absorption*.

A superficial view of imitation would limit its power to physical activities, but a proper analysis shows that it pervades the whole of mental and evolutionary life, and, as stated above, seizes a whole people. *The initiative are few, the imitative are legion*. We constantly tend to imitate others in thoughts, modes of thinking and feeling, and even in religion, as well as in physical activity. In a great city like Constantinople one is amazed at the strange life and customs pervading the whole people, and seeks in vain for what he would call a *reasonable explanation* for the continuation of such conditions. Alas! he looks in the wrong direction for an answer. The answer is found in two words — *imitation* and *habit*.

When imitation takes the form of the dramatic it soon passes into the creative and rises even to its opposite — the *initiative*. In like manner it is related to emulation and rivalry.

Conscious imitation develops out of unconscious imitation. The higher forms of imitation are accompanied and guided by intelligence; but intelligence does not say, "Come, let us imitate." *The desire arises from a deep*

underlying impulse. Intelligence seeks ways and means for carrying out this tendency. In proportion as one acts *rationally* he either becomes original and initiative or *rationaly* imitates what he deems the best, whether it be of the past or of the present, of his own or other nations, of the upper or lower classes. Such an individual is both *conservative* and *radical*. It may be safely stated that few minds rise to this height. We tend to imitate those in power, such as kings and rulers. The poor tend to imitate the rich; the unsuccessful the more successful; the country imitates the city; the high schools imitate the colleges; the supposed superior institutions are largely imitated by the others.

Tarde, in his great work on "The Laws of Imitation," declares that "everything which is social and nonvital or nonphysical in the phenomena of societies is caused by imitation." Under such forms as *passive imitativeness* and *self-originating imitation* he gives a power to imitation never before realized. He draws his copious illustrations from social resemblances, from archeological records, from religion, from governments, from custom and fashion, from literature and art. The stage is the best place to see this wavering between *conscious imitation* and *initiative*. It is also the place to observe the genuine pleasure we derive from imitation.

Thus, whatever we may think of its possible extension into these fields, nothing is more evident than the fact that *imitation* is one of the *sources* from which proceed many of the manifestations of conduct, both animal and human; and even what we call reason is often only *disguised imitation*.

Tarde's law that imitation proceeds from within outward finds a clear application in all cases where our imitation is dominated by a sense of prestige or superiority. Witness the great tendency in us to imitate our supposed superiors in dress, in furniture, in social customs, in education, in occupations, in speech, in reading, in art and literature, in systems of thought and religion. Of course we save our respectability and keep down the feeling of humility by making ourselves believe that we do it all because it is highly reasonable; but it is safe to say that in most of such cases *prestige* or the sense of *superiority* first conquered us and prepared the way for our conclusions. In like manner weak nations do not often imitate their superiors until they begin to *feel* their own weakness and the others' superiority. In such cases we delude ourselves into believing that these things really express our truest individuality. But James well says, "As a matter of fact we find ourselves believing, we hardly know how or why."

"The spirit of the age" reigns because of unconscious imitation. It took men a long time to discover the atmosphere, because everything is seen through that medium. Likewise, it has taken long to realize that "the spirit of the age" is conventionality and custom, because they form a psychic atmosphere in which all minds are bathed and through which everything is viewed. Well may we emphasize the saying of Plato, "The many have only imitated the opinions of others."

Imitation is the instinctive tendency to respond either consciously or unconsciously to suggested movements, conduct, or behavior of any and all kinds, by repeating or approximating the same.

Conclusion. It is necessary to repeat that this presentation of *The Will to Live*, of *Instincts*, and of *Imitation* as sources of human conduct in no wise aims to be a complete treatment of these topics. It is, we hope, a suitable approach to the problems of psychology. The significance of the ideas developed will become clearer and grow in importance, as we apply these ideas to the various problems of this science. Numerous questions have arisen in the mind of the reader. Some will be answered; many cannot be answered. But stimulus to thinking is the end of all study.

If we wish to push our inquiry to larger problems, we may ask if all instincts were once preceded by insight or intelligence which directed activity to specific ends; if such activity then became crystallized into habit, and the habit was then transmitted to posterity as an instinct. Would such a view confer upon the lower animals an incredible amount of intelligence? But how are these potential activities preserved and what guides them with such unerring certainty? Does intelligence gradually develop out of instinct? Or, put in a more concise form, is instinct lapsed intelligence or intelligence in the making? After what is the *will to live* striving? What guides it in its struggles? In the unconscious imitation of others, what presides over the muscular activities? If imitation plays such a large part in life, what becomes of our boasted originality and independence? With these and other forces behind conduct what can be the authority for and use of punishment? Some kind of an answer to these and other problems may dawn upon us as we proceed.

It is hoped that the intimate relations of all the forces of mind have begun to be evident to the student. The *will to live* is inseparable from the other instincts. The instincts all bear an essential and often complicated relation to each other. *Imitation is the essential instinct for the conformity and direction of the other instincts.* The reader must constantly bear in mind that we are investigating a great network of forces that have recently been shown to influence human conduct. Many of them, like the unobserved æsthetic beauties of daily life, are not felt simply because of their continual presence; and others are the deeper, subtler, finer and more powerful forces, the discovery of which has characterized modern science. Any effort to regulate or comprehend the life of man is wise and valuable in proportion as these forces and their relations are understood. We now pass to the intimately related subject of *Habit* as the power which confirms, inwardizes, and personalizes imitation.

CHAPTER II

FOUNTAINS OF HUMAN CONDUCT (CONTINUED)

IV. HABIT AS A FOUNTAIN OF HUMAN CONDUCT

The sum total of the psychical processes are so dependent, interdependent, and related one to another that it becomes difficult to maintain a separate presentation of them. The realization of this complicated relation is one of the main achievements of modern psychology. It is not to be regretted, but it must be admitted that such realization multiplies the difficulty of our problem and makes some repetition imperative. It is also a psychological fact that a problem viewed from many sides gives *an attitude of mind far superior to any list of distinctions and definitions*. Reflexive, habitual, instinctive, impulsive, conceptual, and volitional activities are in some phases so distinct that confusion need not occur; in others they are so dependent, related, and mixed that any unadulterated definition or distinction is impossible.

Reflex Action. As a preliminary step to the consideration of *habit* I deem it wise to call attention to the chief facts about *reflex action*. Historically and biologically it is the oldest of all the activities, and directly or indirectly the basis of many of the other responses. In the chemical laboratory I find a common match. It is a simple explosive,

capable of a definite response to certain disturbances. Nitroglycerin is another compound capable of responding to slight and varied stimuli. Again, guncotton will respond to even a slight change in temperature, and iodide of nitrogen explodes from a slight motion of the paper on which it rests or from a disturbance caused by walking over the floor. From the lowest to the highest degree of responsiveness to outside agencies there are many gradations of chemical compounds. In like manner, from the comparatively simple response of the amœba to outside forces there are all conceivable degrees of ever-increasing readiness to respond to slight changes in conditions and to a greater multiplicity of disturbances until we reach man, whose accumulated complexity of structure, instincts, impulses, and feelings gives a possibility of response surpassing all comprehension. In the lower organisms, and to quite an extent in man, this response to external conditions is what we call *reflex action*. At present I shall not attempt a complete differentiation of reflex action from instinct and impulse, but leave this for future consideration under *will*. Suffice it now that we have examples sufficient to establish an idea. To avoid confusion I shall give them under two divisions — *conscious and unconscious reflex actions*.

When a boy I remember having shot a turtle's head to fragments. Having left it in the water, three days later I was astounded beyond measure to find its body still "alive." Its reflex actions were many and varied. The entire brain of a frog may be destroyed, and yet after many days, if kept in water, the frog is still capable of remarkable reflex movements. A paper with acid on it will be removed

from its back if the frog can at all reach it with its foot. Finally, after all force seems spent, an injection of strychnine into the frog will temporarily restore the reflexes. Again, without entering into the dispute as to just what acts of the lower organisms are conscious and what unconscious, we will have no trouble in finding many that must be classified as unconscious reflex actions. Many rather exact unconscious reflex movements are often performed during sleep. A fly or any other object irritating any accessible part of the body will be removed. The cold may compel us unconsciously to pull up the cover. The somnambulist, or sleep walker, is not uncommon. We may cough or sneeze unconsciously. Under the influence of anæsthetics the unconscious reflexes may be very great, including unconscious reflexive laughing or crying.

By imperceptible degrees of intensity of stimuli do we pass from *unconscious to conscious reflex action*. No one can tell just what faint degree of *consciousness* marks the difference, and always when and where it comes in. *In conscious reflex acts consciousness is present, but it is not the ruling cause which prompts the action*. Such action has no directing idea of purpose. At a sudden, unexpected noise you may jump, scream, or cling to some object; a harmless mouse produces a profusion and a confusion of conscious reflexes. I threaten to throw my book at you; you *know* I will not, yet many reflex movements follow. Hysterical laughing, crying, twitching, etc., are conscious reflex actions. In all of these movements we are conscious that they are taking place, but consciousness does not prompt them and is powerless to govern them or at least entirely to prevent them. The degree of consciousness

varies in different people and in different acts. As we shall see later, consciousness does come in as a prompting and guiding power in the higher acts of human life, but even here the reflex tendency is generally present either as an antagonizing or as a coöperative force. Hence a comprehension of such activities is essential to a proper understanding of their higher products, which we shall study later. *The nearest relative of reflex action is habit.* Reflex action is the physiological *stuff* out of which habit is made.

"Man is born, lives, and dies in a state of slavery. At his birth he is wrapped in swaddling clothes, at his death he is nailed in his coffin," cried the great soul of Rousseau as it rebelled against the power of habit. He did not rise to that larger truth *that the best things in the world are also the most dangerous.* For instance, a vivid imagination is the mother of art, poetry, and literature; but it may also be the source of crime and hallucinations. An intense emotional life moves humanity; but, if turned in the wrong direction, it is dangerous beyond measure. We might demonstrate this truth by the whole list of the most highly appreciated qualities of mankind.

I should like to modify the oft-quoted phrase of Wellington, "Habit is ten times nature," into *Habit is particularized and confirmed nature.* The instinctive tendencies to act along general lines are one and all inherited habits, but not necessarily in the sense that they originated from previous habit, or, as Dr. Brinton would have us believe, that "instinct is nothing but petrified habit." In this brief treatment we shall be concerned chiefly with habits developed in living organisms during the life of such organisms.

Wide View of Habit. At first it may seem ridiculous to speak of the habits of material objects or of chemical compounds, but in a large and true sense *habit is simply predisposition to respond more readily in a similar way under similar circumstances and conditions*. Every one knows how the structure of a chemical compound determines its predisposition to respond in a certain way. A bar of iron acquires a new habit by becoming magnetic. The same chemical molecules that produce the harmless acetic acid, by some strange rearrangement become the poisonous butyric acid — quite a contrary habit is acquired. The most delicately balanced scales are never the same after the touch of the human hand. Delicate musical instruments acquire habits of response. Wires, cables, and countless other objects acquire habits of position and response. That habit is essentially physical cannot be denied. "The laws of Nature are nothing but immutable habits."

In the organic world a high degree of *complexity* and *plasticity* gives a habit formation commensurate with the same. With highly complex and consequently plastic organisms the modifications in predisposition of response are practically unlimited. The plasticity of plants permits them to acquire a countless number of habits. Under the skillful guidance of the great botanist, Dr. Bessy, I saw plants flourishing under various kinds of artificial conditions: some were growing under all degrees of light, from the strong, constant electric light down to long periods of darkness with slight periods of light; others under many different rates of motion; still others with certain gases pouring on them all the time. These and many other

conditions were forcing on these plants habits never before a part of their response. Thousands of experiments have been made with the lower animal organisms, establishing in them modes of response of which they were once supposed incapable. In the great field of observation of animals Morgan assures us that many specific activities once assigned to inherited instinctive reactions are habits acquired in the lifetime of the organism.

In our own bodies do we not find that a sprained limb, an inflamed gland, position of limbs, any drug or food producing a violent disorder of the stomach, cases of neuralgia and rheumatism, leave the part or tissue so modified that even a comparatively slight stimulus will tend to reinstate a similar bodily condition? Primitive peoples often modify the shape of the skull, size of the limbs, etc. by forcing them to a habit of growth. Note how habit adapts our whole organism to certain positions. We stand in a given way, we unconsciously hold our pen, knife, fork, comb, razor, tools in a given way. By habit we come to like a certain chair, bed, place in a car or at the table; certain modes of dress are often defended as artistic and sensible when in reality there is nothing in their favor but the power of habit. The habits of playing with one's watch chain, of swinging the foot while sitting, of biting the nails, of nodding assent to what we do not hear or approve, of continual tapping on the desk, often of yawning and sneezing, are simple confirmed reflex actions of which we may be conscious; yet consciousness is not the cause of them. In like manner the repetition of various physical activities at a certain time and under certain conditions may occur by force of habit alone.

Habit in the Nervous System. In the last analysis we must center our attention on the nervous system and its incomprehensible complexity and plasticity as the great source of this *habit-forming power*. Modern science has established beyond question not only that the nervous system controls all bodily movements, but also that certain definite parts of this system control definite specific movements. All bodily tissues are capable of playing a part in habit formation, but nervous tissue is sensitive to an extent which baffles the imagination. Only when we come to consider the extraordinary powers of the senses can we fully appreciate this statement. So sensitive is the nervous system that the slightest, even unconscious, movements, the odors of flowers and foods, the conscious and unconscious position of the vocal organs, the chirp of the cricket, the song of birds, the sound of a violin, the delicate forms of touch, and slight variations in form and color, all so modify the structure of the nervous system as to establish a predisposition to respond more readily in a similar way again. *All things else being equal, the oftener such nerve action is repeated the more ready is the response, and the more unlikely is any other response in the presence of similar stimuli.* Just what takes place in these millions of delicate fibers that make up our sense organs, and just how so many modifications can be made on so small a structure, perhaps to remain in some form for life, we cannot comprehend. James says, "Nothing is easier than to imagine how, when a current has once traversed a path, it should traverse it more readily still a second time." While this is true, it gives no notion of the nature of these delicate modifications.

Power of Habit in Education. We cannot escape habits no matter how loud Rousseau's *cry* against them may ring out. A large number of our first general responses are inherited predispositions. The general lines, constantly narrowed by the repeated activities of life, ere life is far advanced, wonderfully and permanently reduce the great plasticity of the nervous system. We have no choice but to form habits. Every moment we drift toward the destiny they create. Before the thirties are reached you see the lines are being drawn. The movements, gestures, and postures of the body are well fixed; the voice, even though it be annoying to most other people, is fixed and is a *satisfaction to the individual*; the responses to music, poetry, art, religion, and science are rapidly drifting to their final destiny; some profession has set its mark on each individual, and habit precludes his thinking of any other; habit has fixed his social rank and made him reasonably content with it. If habit did not prevent us from dwelling on these limitations, advancing years would be accompanied by a tinge of pathos; indeed, in many cases such limitations are keenly realized. But usually a man deals with his habits as he does with his perverted religious or political notions; it is the other fellow whose life and general welfare is threatened by them. So it is with habit; it is the other fellow who is the victim of habit. "I regulate my life by reason and good sense and could break through my *few habits if I wanted to do so.*" We often hear the argument that people who have reached maturity with little or no appreciation of music, poetry, art, or science, have the power to become developed in any one of these lines if they would only

devote their whole energy to it. This is like a thousand other forms of false reasoning. That little word *if* begs the whole problem. The confirmed opium eater could stop *if he would only try hard enough*. But where resides the power to cause him to try? Suppose I am told at the age of thirty or forty that I might yet become the greatest violinist in the world; is there a shadow of foundation for such a statement? If the ear ever possessed the wonderful power of those fine discriminations necessary for such art, has not habit long since established reactions which make these impossible? Aside from this, you at once encounter the supreme difficulty — I tell you that I do not care to become a violinist. If I ever had any ambition in that line, it is gone. Indeed, I am much more satisfied and happy to spend my days teaching and writing books. You tell me of some noted cases of achievements late in life, and of great plasticity carried late into the seventies or eighties. I am little affected by this, for, in spite of dogmatic theology, I instinctively know that there are all grades of soul life, and I look around for the average of mankind. So far as either ability or obstacles are concerned, the transition from a scientist to a theologian, or vice versa, does not seem difficult; yet how seldom do you hear of such a thing.

Certainly all we have said concerning the force of bodily and intellectual habits applies with even greater force in relation to the passions and appetites, with the possible reservation that many of the passions and appetites naturally decline with years, and in early life any single one usually encounters great antagonism from the others. Alas, we lack no proof that lying, theft, anger, nervousness,

melancholy, drunkenness, and immorality set their mark upon their victims and usually accompany them to the grave.

Lest we tend toward pessimism recall the maxim, *The best things in the world are also the most dangerous*. Without habit individuality and personality would be lost, and we could not be relied upon; great achievements in any one line would be impossible; so much energy would be squandered as to threaten the existence of life itself; permanency and order would give way to chaos; dissatisfaction with ourselves, our condition, and station in life would become intolerable. Habit economizes energy and makes us immeasurably more efficient than we could be without it. While we are busy with these thoughts, habit is moving our muscles and executing our words. Behold the wonderful efficiency in all games, due to habit; the astounding achievements of animals; the ease and efficiency of the circus performer; the skill of the piano player whose habit seems unconsciously to abide in the finger tips; the habits of the fingers, the lips, and sometimes of the toes, by which means the blind are able to read; the ability of the deaf and dumb to understand us by the movements of our muscles of speech; or turn to the efficient accountant whose extraordinary skill and accuracy the average individual can scarcely comprehend.

Again, habit often converts even the apparent burdens of life into pleasures. We marvel at the sacrifice of the Six Hundred, but largely through accumulated predisposition and the habit of obedience to commands, "into the jaws of death rode the Six Hundred." Habit makes the relation between master and slave appear to each as the most natural and proper one. The burdens of the

destined poor are greatly lightened by habit. It is a great thing to form the habit of truthfulness, of honesty, of self-control, of prolonged attention, of supreme effort, of intense study, of great physical and intellectual endurance, of self-sacrifice, of being content with the misfortunes of life. If we were obliged to fight over our moral battles each time without the assistance and strength of accumulated habits, the devil might get us all.

The Habit of Breaking Habits. Not only must we constantly aim to form good habits, but bad ones that have crept in must be rooted up and others put in their places. And even habits that under certain circumstances and at certain periods are good, must be modified to permit of growth and proper adjustments to changing conditions.

1. *The first step is a feeling of necessity for breaking a habit.* In general language, a peculiar person is usually one who has habits differing in some marked degree from ours. We wonder why he does not abandon such peculiarities ; we proclaim it easy if he only had sense enough to try. If he should turn upon us and say : " Why do you walk so heavily ? What makes you talk so quickly and sharply ? Or why do you constantly frown when you talk to people, or look away off into the distance ? Why don't you reform yourself before you begin to reform others ? " the first and most common answer is a smile or a sneer which says : " That is my business. Am I not satisfied with myself ? Am I not all right ? " A more critical answer would be : " I do not believe you are right. I am not conscious of doing anything of the kind. Even if I do, it does not affect people so seriously as your habits. "

Finally, if we should be brought to realize the truth of his criticism, in many cases we would say to ourselves, "The game is not worth the powder." That is, the meager results will not justify the effort needed to abandon our ways. If one will only note the criticisms which people make concerning each other and analyze the attitude toward such criticisms, he can verify the above statements daily. But aside from our troublesome and dangerous bodily habits, we must keep alive some form of change in order that growth may continue at all.

In the simplest things of life lie many mysteries, and they are present in many of the cases of changing habits. It may be noted that no one changes his habits of life without a strong feeling of the necessity for doing so. Often reason as to the outcome of the habit may furnish this force. But why do some individuals reason as to the outcome while others do not? Why is reason sometimes so delayed? Self-deception is the greatest enemy of human life. One point may be found in the fact that most of the passions that enslave a man with bad habits tend to wane and die with advancing years. The period of "sowing wild oats" is not normally the whole life. Again, "life is a constant adjustment of inner to outer relations." Any modification of either of these tends to beget a modification of life. Often it is the very excess of the habit itself that inaugurates desire for change. A friend of mine had once unconsciously acquired the habit of taking his handkerchief from his long-tailed-coat pocket during his sermon and simply drawing it across his mouth and then replacing it. More than once I directed his attention to the bad effect of this oft-repeated habit, but all to no avail. His sister

and others did likewise. Finally, one Sabbath his sister kept account and afterwards announced with authority thirty-four repetitions of this habit during a single service. Next Sabbath the handkerchief was left at home, and curious nervous movements took the place of the habit.

For some years a gentleman was addicted to drinking in a mild way. Often did his best friends admonish him to stop. He made many efforts. About a year ago he entered the car one evening sufficiently intoxicated to cause him to say many absurd things. Several months after that I was quite astonished when he refused wine at a banquet. He then turned to me and said: "That night was a blessing to me. It settled what I had often tried in vain to settle. I am free forever." The student can readily think of many examples similar to these. How strange that sometimes we must look into the very mouth of destruction in order to escape it. *So the first step in breaking a habit is a strong feeling of the necessity for doing so.*

2. *We must act with our whole being.* James says, "Launch yourself with determined effort." Here I fear that all possible words at my command will fail to describe just what is meant by these statements. I refer to the fact that signing a pledge or making a vow, although consciously sincere, does not always include the *whole being*. As all sciences have their yet unsolved and, in many cases, mysterious problems, so here I refer to such a problem in psychology. You may honestly resolve on New Year's Day that you will *never* smoke another cigarette or tell another lie. You may launch yourself with elaborate vows and meditations as if you expected a bitter

war. Later your soul is besieged by violent agitations and the expected war is on. Soon fleeting, half-subconscious suggestions of holding out for one year, or one month, or of just one more indulgence, come and go. Only this, and probably the battle is lost.

It is my conviction that in the majority of such cases these possible lines of retreat lurked down deep in the soul of the individual at the very time of making the vow and *anticipating a battle*. A large part of human conduct is dominated by these possible lines of variation or retreat, held in the very depth of the soul. Who does not know, better than I can ever describe it, the power, peace, and serenity that result from the surrender of the *whole being*? Cut off all possible lines of retreat and your battle is more than half won.

So long as we argue a line of conduct with ourselves or with others, the *whole being* is not in it. The almost incredible valor, strength, and endurance so often exemplified in man are largely due to the fact that all lines of retreat are cut off and the *whole being* is in it.

3. *Value of increased confidence.* If five days after your good resolution never to smoke again, your friend offers you a cigarette, politely but promptly and without argument refuse it. This first step will add confidence and consciousness of power. This feeling of increased power, to which is soon added that feeling of power which results from the restoration of proper normal physiological conditions, constitutes reserve force for all future contests. "Nothing succeeds like success."

4. *Effects of habit continue long after we think them abolished.* When you *feel* that you have eliminated every

trace of your bad habit, be not deceived into again experimenting with it. In most cases its resurrection will prove only too easy. If you have been accustomed to having the ink on your right, place it on the left, and note how long it requires to establish the habit of going to the proper place for ink. When you *think* it is firmly established, place the ink back on the right side and observe what a comparatively short time is required to reestablish the old habit. Fatigue is sometimes all that is necessary to open the way for apparently lost habits to manifest themselves. This is especially true with habits of speech. The physiological effects of smoking, drunkenness, immorality, and general dissipation are not eradicated by any conversion or regeneration. Down even to the grave, all things else being equal, the individual remains more susceptible to attacks in these lines than he would, had such never invaded his system. Vital and important as this subject is as a *fountain of human conduct*, I must now leave the reader to widen the thought by his reading, experimentation, and observation. In a later chapter a few words will be added on the *ethical* aspects of habit. Suffice it to say here that the most efficient moral individual is not the highly rationalized ethical individual, but the most *perfectly habituated machine*. I hope the foregoing is sufficient to leave no doubt that *habit* is one of the *fountains of human conduct*.

CHAPTER III

FOUNTAINS OF HUMAN CONDUCT (CONTINUED)

V. FEELINGS AND THEIR DEVELOPMENT

To describe an immediate feeling or an emotion or to reproduce one in memory is one of the most difficult arts of life; to live it is one of the most real and powerful phases of human existence. When they are not mere imitation, art, music, and literature at their best are the products of a desperate effort of one person to make others realize similar feelings and emotions. It is a struggle to objectify the deepest life of the soul. Occasionally we are overpowered by a dim remembrance of some strong feeling of childhood which no language can describe, yet we value it beyond power to estimate. In our own hearts we may discover an indefinable, all-powerful restlessness, a longing or an ambition for something we know not what, a "call of the wild," or of some deep instinct; now a positive self-feeling which exalts us among the powerful, next a negative self-feeling which brings us down from the clouds and fills us with loneliness and humility. Fear, anger, disgust, wonder, hate, and tenderness in some of their multiple forms have left their permanent stamp on our souls. Few individuals are so poverty-stricken as never to have kept company with admiration, gratitude, scorn, envy, reproach, revenge, sympathy, pity, and love. What normal,

matured individual has never been tossed to and fro by anger, regret, remorse, shame, love, jealousy, or hatred? Well might Goethe exclaim: "What a thing is the heart of man! It is the sole source of everything — of our strength, happiness, and misery."

The above-mentioned feelings, together with their many and often indescribable combinations, constitute a *fountain of conduct* which, both consciously and unconsciously, largely directs and controls no small part of human conduct, reason, memory, and will. It is that we may better understand such topics as reason, will, apperception, suggestion, social psychology, morality, and the whole of daily conduct that I present the simpler phases of this great theme now. With the many disputed problems, careful distinctions, classifications, and definitions of advanced analytical psychology I cannot deal in a work intended for beginners. To be effective we must *feel* first and *define* later. Excepting a few simple classifications, distinctions, and definitions, no one is better qualified to follow what I shall here present than the adolescent reader. "The life of feeling," says Dr. Hall, "has its prime in youth and we are prematurely old and too often senile in heart. What does the psychologist of the study know of hate that makes men mad or bestial, of love that is not only uncalculating but stronger than life, of fear that shakes the pulses, and of courage that faces death in its crudest forms, unflinchingly? . . . What we feel is secondhand, bookish, shopworn, and the heart is parched and bankrupt."

In ordinary language feeling is used in a very wide sense. Common sensations such as touch, pain, hunger, thirst, temperature, are spoken of as feelings. Again, we

refer to love, hate, joy, sorrow, hope, anxiety, pride, vanity, wonder, awe, honor, truth, virtue, doubt, approbation, reverence for the past, etc. as feelings. We include also the more intense psychological states known as the *emotions, which are simply intensified and complex feelings usually accompanied by some marked bodily manifestations*. Some representative idea into which imagination may enter greatly intensifies emotions, but such is not a necessary condition of emotion. These examples will suggest the enormously wide use of this word.

Has this common psychology any justification? Certainly it has. Just as suicide and melancholy have their true causes hidden from the careless observer, so back of this apparent loose use of the word "feeling" lie at least two common elements. If we disregard the dispute about neutral states, all feelings referred to under this use of the word are in some degree either pleasurable or painful. Later, I shall present an apparent paradox under the title of *pleasurable pain*. Again, any and all such uses of *feeling* refer to an internal, subjective condition of the individual as opposed to the knowledge-side of sensations and impressions, which refer to an outer world. On seeing a beautiful display of roses we attribute the color to the flowers, but the pleasurable feeling is in us. *Thus feeling is simply the pleasurable or painful side of any and all states of consciousness.*

Importance of the Feelings. Observation and analysis of one's own mental content will soon reveal the fact that everything has value in proportion as it affects the feelings. Goethe makes Werther say of his friend, "He values

my understanding and talents more highly than my heart, but I am proud of the latter only." One of the three greatest advances of modern psychology is exactly and conclusively to reverse the places assigned to feeling and intellect by the *old psychology*. From the days of Plato the *old psychology* proclaimed the supremacy of the *rational element* in man. Modern biological psychology demonstrates that the intellect operates under the guidance of the feelings. Common and universal beliefs usually have some element of truth, more or less dimly apprehended, and it is this modern, clearly revealed truth that lurks behind the universal tendency to exalt the *heart* above the *head*. Ruskin says, "I am certain that in the most perfect human artists reason does not supersede instinct, but is added to an instinct." *The feelings are fundamental, while the intellect is a secondary product*. The chief business of the intellect is to devise ways and means to satisfy the deep longings of the human heart. The impetus to life and to great undertakings is not given by the intellect, but by the feelings. Strong desire, love, anger, fear, vengeance, ambition, inspire men with ideas. History demonstrates that the chief force of civilization resides in the feelings.

When you find a man defending a given policy or line of conduct, look not to his logic but search diligently for what he *feels* to be his interest. In most cases the facts accepted or rejected, as well as his logic, are governed by it. I do not mean that he is necessarily a hypocrite or dishonest, but deep desire makes straight for its object and focuses the intellect in one definite direction. Nor does this apply to achievements of selfish ends only. It applies with equal force to the moral reformer. Here, for the *feeling*

of personal interest is substituted the *feeling of duty or obligation*. As viewed in after years the shortsightedness of most moral reformers is incomprehensible to the historian who seeks for logical reasons. Quietly and passively he reasons at his desk, while the doers of these deeds reasoned from an inner-court of feelings which circumstances forever bar him from entering. So it is with individual conduct. In Goethe's "Meister" one of the characters, Aurelia, gives the highest possible praise to her uncle's intellectual powers, and then says: "With me he did not prosper quite so well, for here the question was about emotions, of which he had not a glimpse; and, with whatever tolerance and sympathy and rationality he spoke about my sentiments, it was palpable to me that he had not the slightest notion of what formed the ground of all of my conduct."

Every reader may find in the depth of his own soul some proof of this statement. You well know that in the last analysis the real cause of much of your conduct and of your intellectual inclinations is hidden from general observation, and that outwardly you are misjudged, sometimes to your great satisfaction. In the consideration of *Apperception* I hope to make clear how love, anger, hate, fear, jealousy, personal interest, habit, past experiences, political and religious sentiments, unconsciously direct reason and control the general trend and interpretation of our matured observations. From an educational standpoint, fire a soul with a burning desire to accomplish something and the chief work is done. To my young readers I should like to say, if you have no destined aim that absorbs your whole being, no ambition to achieve

things in life, no desire to excel at least in some line, no longing to be genuinely useful in the world, then I care not how much money you may have, nor how much knowledge you may absorb, nor how many degrees you may buy, I cannot expect anything of consequence from you.

Classification of Feelings and Emotions. Here I shall only suggest some of the different standpoints of classification and give at least a working basis in order that we may the better understand the different works on feeling and emotion. These subjects, usually presented separately, I present together, for the simple reason that the distinction between feeling and emotion is purely arbitrary and one of degree. Those who reserve the use of the term "feeling" to designate the consciousness of pleasantness and unpleasantness certainly do not help matters by placing such mild and relatively continuous states of consciousness as friendship, dislike, pride, humility, and vanity under the emotions. We probably never experience the primary or fundamental emotions and feelings in their pure forms. The current names designate mixed, secondary, and complex states.

To get back to the simple states out of which our feelings and sentiments are compounded has led to various efforts to analyze and classify this field of mental activity. Descartes specifies six primary or fundamental passions — desire, hatred, admiration, love, joy, and sadness. All others are compounded and derived from some of these six. From a biological basis, Drummond, Ward, and others would reduce them all to *hunger* and *love*; or, stating them in another form, *nutrition* and *reproduction*, which

terms are used in the widest sense as synonymous with *selfishness* and *altruism*. These two they claim are universal, belong to all creatures, and are not derived from any antecedent ones. These two are the chief sources of all action, and out of them all other feelings have been evolved. They gain rather than lose strength as they blend and mix with the later-evolved forms of feeling, so that in society selfishness and altruism become the principal social forces and the foundations of sociology. Bentham gives sixty-four English words practically used as synonyms for selfishness. Spencer finds love composed of at least a dozen strong, coöperative feelings.

Some writers classify the emotional feelings as Altruistic, Egoistic, Æsthetic, Intellectual, Moral, and Religious. For practical psychological purposes this classification has much merit, and we shall discuss these groups of feelings later. Like Bain, we may adopt a classification based on observation of similarity and difference. Again, we may adopt the method of the botanist and attempt to discover classes, genera, species, and varieties, but I fear we shall be hopelessly entangled before we get far in the varieties. Herbart inaugurated the attempt to classify according to the ideas or intellectual states behind the feeling.

One of the latest and most suggestive analyses is that presented by Mr. Shand, and adopted by McDougall in his "Social Psychology." The last mentioned gives seven primary emotions — fear, disgust, wonder, anger, negative self-feeling, positive self-feeling, and tender emotion. These, plus the feeling of pleasure and pain, are compounded to produce all others. At the same time the sentiments are distinguished from the primary emotions and made the

chief agents in compounding the latter. Our emotions tend to become organized or centered about some object, and this organized system he calls a "sentiment." The existence of such an organized system is readily shown by a single illustration. You have acquired the sentiment of love for some object; now you are liable to experience tender emotions in its presence, fear or anxiety when it is in danger, anger when it is threatened, sorrow when it is lost, joy when it is restored to you, and gratitude when it is well treated by others. All these feelings are connected with a single object of love. In a similar way it can be shown that an object of hate may excite fear, pugnacity, curiosity, submission, anger, self-assertion. I believe the general idea here involved must be accepted as a valuable addition to our analysis of this subject; but it would be a rather easy matter to show that no satisfactory classification has yet been made, and each student must accept that classification that serves his immediate purpose, and must finally learn to view the same thing from many different angles.

Chief Characteristics of Feeling. 1. *Pleasure and pain* are characteristic qualities to which we must give great importance. They are signals of welfare and danger. To gain the one and avoid the other are constant motives of action. Nearly every morning my boy of six leaves his bed and rushes to the window to see the beautiful eastern sky. The feeling is *aesthetic* and the quality is *pleasurable*. Later he is angry because his stock show has suffered some disarrangement during his sleep. The feeling is *egoistic* and *painful*. The pleasurable feelings we strive

to continue and increase; the painful we would avoid or diminish. All affective states of consciousness have one or the other of these two qualities.

Some writers maintain a third quality — a neutral state in which there is neither pleasure nor pain. It occurs to me that this dispute originates from two sources. First, we confuse mathematical abstractions with psychology. I am now cold, the room is gradually heated, and ere long I say I am warm. From mathematical calculations I must have passed through a point where I was neither hot nor cold — a condition neither pleasurable nor painful, neither agreeable nor disagreeable. Perhaps I did pass through such a state and had no *feeling* about it. In that event there is no sense in calling it a *neutral feeling*. The main source of misunderstanding is found in the fact that all feelings and emotions involve consciousness of a multitude of sensations of the outside world by which consciousness tends to be turned away from the individual subjective condition. *In proportion as the intensity of feeling is low, the knowing phase of consciousness becomes dominant and the feeling side drops into the background of consciousness, if not entirely out.* But it is folly to talk about a *possible or mathematical pleasure or pain which is not in consciousness*. Pleasure and pain have no existence outside of consciousness.

While I write I hear on one side of me a man's voice. I cannot say it is either pleasurable or painful. My consciousness, so far as it takes any account of it, notes it as an *objective fact*. At the same time with my left hand I am feeling the table cover. Of this act I am occasionally conscious, not as pleasure or pain but as an *objective*

fact of sensation. From the room on my right occasionally comes the sound of loud laughter. Immediately my consciousness is directed to my subjective condition and the feeling is painful. Observe the effect of the recently discovered anæsthetic — stovaine. It is injected into the patient; the subjective condition is excluded from consciousness, while he may sit up and have objective knowledge of what is going on. Hence, if we mean that all knowledge has either a pleasurable or painful phase, we certainly could not maintain it on the testimony of consciousness. Now the wind is blowing. Just at what point it will become intense enough to focus consciousness on the subjective condition there is no way of ascertaining, but when it *does* I shall probably have a disagreeable feeling. This is all that need be said on the subject in a book so limited in its scope.

a. The apparent transition of pleasure into pain is a fact of common observation. If sufficiently prolonged, pleasurable states of mind are supplanted by painful ones. In common language we speak of *pleasure* becoming *pain*. We should say that pleasure is succeeded or followed by pain. My present comfortable position, a glorious sunset, a pleasing violin solo, the joyous dance, the victor's rejoicing, the satisfaction of hunger and thirst, the delights of wit and humor, the pleasures of intellectual speculation, joy over success, these and many more are all pleasurable conditions of mind, which, if greatly prolonged, will be followed by painful states.

At first thought it would appear that the reverse proposition should be equally true, but it is not. It is only in a few abnormally emotional persons that prolonged

acute pain gives way to pleasure. In some cases pleasure, due to other associated ideas and feelings, may develop. This condition is especially manifest in those who rejoice in persecution even unto death. Many have declared that their severest physical torture was the happiest moment of their lives. Bruno is imprisoned for many years; finally he is bound to the stake, surrounded by the multitude of scoffers and onlookers; his priestly accusers wish some excuse to let him go, and when they ask him if he has anything to say, with scorn for them and rejoicing in his persecution, he replies, "I foresee that you dread this more than I do." But, as already stated, such are not parallel cases to those given under transitions of pleasure.

There are, however, two things that must be noted. First, pleasure is often greatly intensified by contrast with previous pain. Again, by *force of habit*, by *association of ideas*, and, in many cases, by the *developing of a sentiment*, many painful physical and mental activities, and even the so-called painful performance of duties, may become genuine pleasures. Such transitions take place in physical taste and in the æsthetic feelings. Certain foods and forms of dress that at first we can hardly tolerate may later become pleasing. Moreover, daily disagreeable tasks come to be agreeable by force of some one or all three of the factors mentioned. In a similar manner many forced intellectual pursuits not only lose their painful aspect, but pleasure accompanies them. These differ from the cases under "pleasure" in not being the result of any single, continued performance. The cause of the cases where pleasure gives place to pain is found chiefly in fatigue,

while in the cases where pain seems to pass into pleasure it is chiefly *habit, association of ideas*, and the gradual development of *sentiments*.

b. Pleasurable pain—a psychological paradox. In order to avoid confusion it seems desirable to say a few words on this strange subject while treating of the *qualities of feeling*. When Dickens, in describing the death of Little Nell, says, "The sorrow for the dead is the only sorrow from which we do not wish to be divorced," his psychology is very misleading. There is not only one sorrow, but there are many from which we do not wish to be divorced. Spencer treated this subject as one involving great mystery. Such strange psychological conditions include many physical, æsthetic, intellectual, and moral states. In these peculiar states the individual is pleased with *his own suffering*. It is no new development or discovery. All peoples and all ages have furnished examples of it. We find it distinctly manifested in the literature of India. Speaking of the ancient Persian poem by Omar Khayyam, Dr. Jordan, in his little book, "Philosophy of Despair," says: "It is the sweetness of philosophical sorrow which has no kinship with misery or distress. In the strains of the saddest music the soul finds the keenest delight. The same sweet, sorrowful pleasure is felt in the play of the mind about the riddles which it cannot solve." Who has not felt this *sweet sadness* in some form? Homer represents a man "rejoicing in his tears"; and the Bible contains many such references. Ribot gives several cases of taking pleasure in physical pain. A man may willfully torture his own body until he sheds tears. The days of asceticism will furnish many examples, but in asceticism

there was usually mingled some ulterior motive. For pleasure in moral pain James's chapter on the Sin-Sick Soul is supreme. "The normal process of life," says he, "contains moments as bad as any of those with which insane melancholy is filled. . . . The lunatic's visions of horror are all drawn from the material of daily fact. . . . If you protest, my friend, wait until you arrive there yourself." We may mention also the pleasure which is often taken in bloody spectacles and cruel torture. In contrast with this there are many people to whom constant fear is a daily enjoyment.

But the best examples for the student are those of daily occurrence under the head of common despondency or melancholy, which may be seen any day in the lover, artist, poet, musician, homesick student, and in the general restlessness and despondency of the indefinite adolescent feelings. As a rule these people do not want to be relieved of their suffering. Instead of accepting relief they do that which feeds the feeling. I once knew a professor who, after seven years of suffering from the loss of his wife, refused all offers to change some of the old, worn-out furniture for new or to have his room papered. It must be left exactly as it was when she died. The picture of her grave was hung where he could see it every morning on waking. Yet he was a sane man.

Did you ever try to console a melancholy lover or a homesick person, and ten minutes later find the individual reading something like "The Sorrows of Werther," or playing "Home Sweet Home"? This is what Spencer calls *the luxury of grief*, and it seems to grow with civilization. The three possible explanations offered by different writers

for these phenomena are so speculative that we have no space for them. But that there is such a thing as *sweet sadness*, and that *sorrow-charmed* souls exist, are not matters of speculation.

c. Physical basis of pleasure and pain. A few words must be said on the physical aspects of pleasure and pain. In our body as a whole and in any and all of its parts there are ever present two processes, a katabolic and an anabolic — a tearing down and a building up, a destruction and a reconstruction. According to Ribot and others the degree of dominance of one of these processes over the other in the whole organism or in any part thereof determines the degree of pain or pleasure experienced. Ribot says: "In most cases, if not in all, two contrary processes are going on simultaneously — one of increase, the other of diminution; *what comes into consciousness is only the result of a difference*" — a difference between receipt and expenditure. That the nervous system is a storehouse for energy we know, and, when well filled, pleasure comes from a normal expenditure of it. With a surplus of energy the dance or any athletic activity is pleasurable, but if it be carried to where the waste exceeds the repair, fatigue and pain result. The same thing occurs in mental activity. If I continue writing for hours, the tearing-down process will exceed the building-up process in my arm, and writing becomes painful. If mental activity be greatly prolonged, the same condition will exist in my brain. But all normal exercise helps the nervous system to store up energy for future use. Any dissipation that squanders energy faster than it is generated draws on the reserve and must soon result in pain. Also constant anxiety, worry,

fear, and grief consume nervous energy rapidly and may finally send their victim to the insane asylum. All forms of activity are accompanied by some waste, and there must be periods of restoration. There is a very suggestive book entitled "Worry, the Disease of the Age."

On the psychological basis of pleasure and pain as states of consciousness, it would be impossible to maintain Ribot's thesis without several very important exceptions. There are many painless diseases that gradually consume all of one's energy without causing pain save when exertion is undertaken. Again, as I shall show in another chapter, it is astonishing how far *suggestion* may control, augment, or diminish pain.

2. *Difference in intensity is a specific characteristic of feeling and emotion.* That feelings and emotions vary in intensity and duration needs no argument or examples for any reader. But why do they thus vary? Not only will toothache, anger, love, and sorrow vary in intensity, as your experience proves, but some people attempt a quantitative comparison of these feelings with each other. This is evidenced by all efforts to estimate the relative amounts of pleasure and pain we suffer in life. To some, life is not worth living because the pain seems quantitatively to exceed the pleasures of life. Again, the same stimuli produce widely different effects at different ages. It is also true that the same intensity of stimuli produces widely different intensity of feeling for different individuals, but we have no exact means of measuring such *psychic intensity*. Can we find any of the factors producing these variations?

a. The organization of our nervous system which heredity donates to us has much to do with the *intensity of*

feeling and emotion. Whether we attempt to hold the old division of four kinds of temperament — *phlegmatic, melancholic, choleric, and sanguine* — or not, we must freely admit that all are not born into the world with the same characteristic temperament; and, all things else being equal, this difference in inherited nervous systems will produce corresponding variations throughout life.

b. It is also true that, through disease or shocks, the nervous system may receive striking modifications that ever after help to determine the intensity and prolongation of feelings.

c. The nature, strength, and development of the instincts to which the stimuli appeal, are powerful elements in determining this variation. The instincts are the background of all emotions. All things else being equal, the sight of a starving child will not produce the same effect on a man, on an unmarried woman, and on a mother. Not only that, but the same sight will produce quite a different intensity of feeling in the same woman, in proportion as the mother instinct is developed.

d. The intensity and prolongation of all feelings, and especially all bodily feelings, are greatly affected by the strength and continuation of the stimuli. When these reach a certain degree *the sensibility to response is decreased.*

e. Habit is also present in all our emotional reactions. We may acquire the habit of shedding tears or becoming angry at the slightest stimulus.

f. Also the presence or absence of *counteracting feelings* varies the intensity. This is one of the effects of a well-educated and cultured *feeling-life.*

g. Associated ideas and mental images vary the intensity and prolong emotions, apparently without limit. In this manner even physical pains and pleasures are in a marked degree modified. The thought that grippe is keeping me from my work adds to the intensity of my suffering, and the mental image of lying sick for three weeks reënforces it. The effect of images on our feelings is wonderful. We may know from careful statistics that five thousand fishermen are yearly lost on the high seas, that one thousand employees are annually killed on the railroad; but the effect on our emotional life is zero as compared with that produced by the statement that a steamer, after gradually filling up with water, and many jumping overboard, *sunk with all of its twelve hundred passengers*, or that *three hundred miners are hopelessly entombed in the earth*. As we shall see later, the dynamic power of social reform is not essentially found in reason, but in the feeling evoked by the mental images the leaders may skillfully paint.

3. *Feelings are referred either to the soul or to bodily conditions.* The third characteristic of feeling need not detain us long. Judged from our own consciousness, feelings attach themselves either to changing bodily conditions or to ideas. In a limited elementary work it is not desirable to go into the physiological theories of emotion, such as the James-Lange Theory and that of the opposing school. For two reasons it is well to state James's theory, which has caused so much comment since its first presentation. Briefly stated it is, that the *feeling side of the emotions is simply consciousness of the bodily disturbances*.

The feelings we call love, anger, fear, sorrow, are simply the consciousness of indefinite, unlocalizable, bodily disturbances. This includes not simply the visible disturbances, as the careless reader might infer from such statements as, "we are sorry because we cry," and we are "afraid because we run"; it includes every possible disturbance of circulation, respiration, digestive functions, every change of tissue, and every muscle affected. These coöperate to give the sum total of consciousness designated as such and such a *feeling*. It is now a scientific fact that different colors and sounds produce even in dogs a marked change in circulation, respiration, and other bodily functions.

Every stimulus applied to the nervous system tends to diffuse its effects to every part of the organism. Every strong stimulus inevitably does so. On being startled, the circulation and respiration are disturbed. Fear, shame, and anger change the blood supply to the skin. Haller found that the beat of a drum caused the blood to flow faster from an open vein; and Masso demonstrated that different sensations cause a change of the circulation in the brain. Certain stimuli cause all the muscles to become tense. These and thousands of other bodily changes cannot take place without producing fundamental changes in the states of consciousness. Will these changes account for the whole of emotional feelings? James says they will.

I have stated this theory for two reasons. In the first place any student of the subject must detect a large element of truth in it, even if he fails to give it an unlimited application. I have had a good dinner. I have a *feeling of satisfaction*. I do not locate it in the stomach or in any part of the body, yet I well know it is due to a bodily

condition. Subtract from any one of the conscious states called anger, fear, jealousy, hatred, love, sorrow, or joy, even the bodily sensations you are readily able to detect, and you will see at once that you have greatly reduced the emotion. Again, this suggestion does help to account for the *great complexity and variability of feelings, because the bodily conditions are capable of an indefinite number of combinations and variations*. Here I leave the reader to extend the inquiry and make other applications.

Feeling and Literature. In another chapter I shall call attention to psychology in literature, but here I wish the student to see the practical value of this subject as it affects his study of literature. Literature is an effort to portray in a vivid form the feelings we have been considering. It is only by catching these feelings in the strongest manifestations that we can recognize their wonderfully compound nature. You may not call it psychology and you may not get it from a book so labeled, but some psychology of the emotions you must have for a keen appreciation and study of literature. Let me offer just a few general suggestions, which make no pretense of being absolutely correct, as to some of these elements in literature.

All writers must present some one or more characters for *admiration*. What a complex feeling! What is necessary to awaken in you this feeling? Certainly wonder and the feeling of submission and of self-abasement are present. But this is not all; the impulse of curiosity is there, and the negative self-feeling, as being in the presence of a superior, is manifested, but the latter in turn is essentially related to the social feelings. Since admiration requires

humility and generosity, the conceited person is in a measure incapable of admiration. Admiration mingled with fear is soon transformed into *awe*. Awe becomes compounded with gratitude and we have *reverence*. But gratitude is itself a compound of at least two or three other feelings.

So we might examine envy, jealousy, love, shame, joy, pity, demonstrating their complexity. I hear the reader say, "Well, what of it? Of what good is it to know this?" For one thing it will help us to correct our absurd judgments of human acts, and learn that when men assert a single motive for their conduct it is not true. Either consciously or unconsciously they are wrong. In the whole interpretation of human life there exists no greater error than this. I may tell you I am going to the South Sea Islands as a missionary, purely from a sense of *duty*. But later you learn of my lifelong desire to cross the water and to travel in foreign lands; of my strong curiosity-temperament; that I am to receive a good salary; that I am to *control* other men in which my soul takes great delight; and that I am fond of lecturing as a means of securing the admiration of my fellow men. May not all of these be parts of *my pure sense of duty*? I may also be honest or dishonest in part or in all. *But whether we are aware of it or not, conduct rarely ever proceeds from a single motive.* Human conduct is rarely ever purely good or purely bad. The young bank cashier who supports a spendthrift wife and mother-in-law may finally rob the bank, not as a pure thief, but from a combination of the forces of love, fear, pride, humility, ambition, desire for gain, etc. It is the business of literature to portray these combinations and antagonistic feelings that constitute life and conduct.

Hundreds of pieces of literature could be named in which just this kind of psychology constitutes the primary interest and the sublime climax. The teacher of literature must know this great web of emotional life. She may name it psychology or what she pleases, only she must know it, and ever utilize the great moral power of these feelings to the limit. In literature knowledge for the sake of knowledge is a sin against the developing soul, and should be reserved for the word-made soul that no longer has an emotional life to corrupt.

Shakespeare and Ibsen everywhere abound in this keen analysis of compounded and conflicting emotions. "Macbeth," "Hamlet," and other plays rise mountain high in this entanglement of feelings and emotions. In "Brand" the great tragedy consists in trying to force one emotion, or rather sentiment in the form of an ideal, in spite of all other conflicting feelings, upon all other men and women. In Shakespeare's "Coriolanus" what appears about to become the highest elevation of the hero is converted into his overwhelming downfall by the gradual growth of his unconquerable pride. *True literature consists of the web of the emotional life set in artistic form. True study of literature is inner realization of these relations, combinations, and warring combats.*

The Sentiments. A group of feelings centered about some object or person may be designated as a sentiment. Such a designation must be taken only in the most general way. I do not attempt to draw any sharp line between feeling, emotion, and sentiment. They are inseparable parts of one great phase of mental life. Among those who

have treated the sentiments there is no agreement. Spencer says: "Nothing more is possible than the arrangement of them into groups that graduate one into another, but yet as wholes are broadly distinguishable. Bearing in mind this qualification, the word "sentiments," as used in this and succeeding chapters, must be taken to comprehend those highest orders of feelings which are entirely re-representative." He then treats of egoistic, ego-altruistic, altruistic, and æsthetic sentiments. Ribot calls attention only to religious, æsthetic, and intellectual sentiments, while McDougall places such feelings as love, surprise, sorrow, joy, and others under the sentiments.

There are, however, certain sentiments quite distinguishable from the more fundamental feelings. The two great factors in the development of a feeling into a sentiment are *habit* and the *association of ideas or transferred feelings*. The sentiments are the chief storehouse of all social force and the chief basis of valuation. Not long ago I observed a neat little church rising on lots adjoining an old dilapidated church. The contrast was unpleasant; yet the people who had attended church there so long, cheerfully sacrificed much to buy a new site and preserve with care this unsightly dilapidated building. This is *sentiment*, or a group of feelings and their associated ideas, centered about an object. You can think of a thousand similar cases. The flag of a man's country becomes the object of a group of feelings and sentiments capable of exciting many mingled and different emotions. What mingled sentiments arise as one stands on the battlefield of Waterloo! Yet one sees only pasture fields and a high mound of dirt. We transfer many feelings and sentiments to this object.

For thousands of years we have been creating sentiments about individuals, art, literature, and religion, and these sentiments so completely dominate our judgments that absolute truth becomes a psychological impossibility. As a general rule the probability of getting the truth decreases as age and sentiment increase. Some of us believe that we are now far from knowing what Shakespeare intended to say; but, if the Shakespeare sentiment grows for a thousand years, what shall we say then? Our protection and redemption, or substitute for truth, lie in the psychological fact that such sentiments always tend toward the idealistic. In so far as ideals are more valuable and powerful than the realistic, just in so far are these sentiments above the truth. These historical poems and books of comment about the great past are largely *born of our ideals and sentiments projected into the future*. If efficacy be the standard, they will ever remain far above the scientific truth.

But, again, *the warning that the best things in the world may also be the worst must be sounded*. The manner in which *sentiments* of the kind above mentioned stand in the way of progress is so evident as to need no comment. I shall make no effort to differentiate or classify the sentiments. I only desire to call attention to this application of the sentiments, usually omitted by the psychologists. All through this chapter the chief aim has been to show how *feeling* is one of the great fountains of human conduct, which pours its waters into the great stream of life. If I have given you even a glimpse of its fundamental importance, and shown how we cannot properly interpret any of the other mental powers without its consideration, my end is accomplished. It is an *attitude of mind* we need.

Education of the Emotions. It is hardly proper to close such a vital chapter as this without saying a few direct words about the greatest problem in all education — *managing the feelings*. Any education that kills feeling kills life. At least such historic efforts are on record ; and ever since the day that Plato exalted *intellect* and compared feeling to the sensuous wild horse that ever pulls downward, and compared *will* to the driver, we have had psychologists and educators who have directed their efforts to slay feeling or at least to let it die of atrophy. Feelings may be regulated, educated, and refined to some extent, but when they are destroyed you have an extinct volcano on your hands. No amount of intellect can say, " You ought to have sympathy, to love your neighbor, to give to the poor, to appreciate a beautiful sunset, to pity the unfortunate, to love God," and thereby create the power that does such things. *The immediate antecedent of right conduct is either right feeling or correct habit.*

Habit is fundamental in the education of the feelings, not habit that results from intentional repetition, but rather habit that unconsciously results from environment and conditions. Imagine a man who, Robinson Crusoe-like, has always lived alone on an island. I might offer him a reward to form the habit of eating once a day, of rising at four o'clock in the morning, and a multitude of other similar things ; and by intentional repetition he may succeed. But how shall he proceed to form the habit of sympathy ? This may appear extreme, but it illustrates the need of environment. Much of the psychological and moral advice about setting yourself the task of doing certain things to develop certain emotional habits is mostly speculative

waste, because few there are who ever attempt such a thing. Those who only *feel* are sometimes contrasted with those who *act*, as if those who *act* do not also *feel*.

1. *A practical educational division of the emotions.* The classification of emotions as Egoistic, Altruistic, Æsthetic, Intellectual, Religious, and Moral has already been mentioned. For educational purposes and to give some degree of definiteness to our efforts there is no more practical classification than this. But we must expect only *practical* and *partial*, not *absolute*, distinctions. An unmixed moral emotion is hard to find, but one in which the moral element predominates is not. Again, it is the intense form of these emotions that is most easily recognized and analyzed.

a. Education of the selfish or egoistic emotions. Such a topic will appeal to many as almost ridiculous. Do we need to educate selfishness? Is it not, as Buddha said, the source of all evil? Has it not already ruined the world? Are not men, as some pessimists say, wholly selfish, and all self-sacrifice only a cloak and a pretense? *Enlightened feeling directed toward healthy action is everywhere the fundamental aim of education.* Under egoistic must be included all emotions that directly or indirectly affect individual welfare. It is likewise not difficult to see that self-preservation is the fundamental condition of all other functions. Without health and energy, industrial, parental, social, and moral functioning is forever impaired or impossible. How fortunate that nature provides for self-preservation chiefly through instincts and these egoistic emotions rather than leave it to the blunders of men! Yet there is an education given to these selfish

emotions, chiefly, as already indicated, by unconscious *habit formation*, which may greatly hinder or improve the efficiency of the individual. Fear, anger, jealousy, pride, positive self-feeling, desire for approbation, for superiority, for power, and the thirst for ambition we would not destroy if we could. On the contrary, a wholesome environment may give these such a development as is very necessary for the other functions of life. Scientific works on education will give the detailed ways and means.

b. Altruistic and moral emotions. Here we deal with a group of feelings presumably the direct opposite of the ones above mentioned, but by no means so clearly defined. They include all feelings whose end is in any way the welfare of others. Drummond calls altruism "otherism." Altruism is an extension of the general use of the word "love" or "self-sacrifice" to include not only the conscious giving up of self, but also any unconscious self-surrender to further the welfare of others. The mother's love for her child is always designated as the purest example. The complex *sympathetic* emotion is perhaps its most general form. We cannot believe that selfishness and fear alone hold society together. *The social and sympathetic feelings make possible any ethical basis of life.* They are behind every moral feeling of *ought*. How necessary is the fulfillment of the command, "Rejoice with them that do rejoice, and weep with them that weep." This is *sympathy*.

Let us suggest some of the chief factors in the education of these emotions:

The environment is all-important. The child's love for God must find its fountain source in the love for its mother. When will we learn that emotions are not inaugurated by

command or by popular suffrage? How cruel is our treatment of some children and often of adults, all because they do not have the qualities we think they *ought* to have. On what ground do you demand or expect sympathy from an individual that has never known any?

Shut off from the world, one cannot grow in sympathetic emotion. With a little material the imagination may go a long way, but it has its limitations. The sympathizer must observe, if not experience, sickness, disappointments, happiness, joy, misery, poverty, ignorance, and suffering of a thousand forms from this powerful hand of nature. At what age such observations shall begin and to what extent they shall be carried, pedagogical sense and the nature of the child must determine.

After observation comes good literature as a means of educating the altruistic life. But past experiences and the imagination are the only means by which a child can get anything out of literature.

The noble lives of self-sacrificing men and women exercise a powerful influence in awakening and developing similar emotions in children.

Finally, we must not forget *the power of suitable music.* You may sing a dozen emotions into an individual while you are vainly trying to argue one into him. Emotions are propagated chiefly by contagion, and music is one of the best-known agents for such propagation. Music is the deepest, oldest, and most universal language of the heart. The heart is a musical instrument whose many strings are the emotions of life. Music of the proper kind at the proper time is the most powerful known agent for the development and refinement of the emotions. Now that

we have learned that proper morals depend upon the *feeling-life*, how imperative that we substitute for the *formal* rehearsal of music the *soul* and *life-giving* elements of music! Instead of music teachers standing around listening to see how well the children strike the high or low notes, they had better be looking for what fires have been kindled within the soul.

I cannot refrain from quoting from that recent masterful treatment of the educational value of music, by Dr. Hall: "The prime end of musical education in the grades is to train the sentiments; to make children feel nature, religion, country, home, duty, and all the rest; to guarantee sanity of heart out of which are the issues of life. To this, technic and everything else should be subordinated. . . . Much school music is now chosen merely with reference to some scheme of pedagogic, systematic progression. Much method here is a sin against the holy ghost of music itself. Every tune introduced should have a moral and æsthetic justification. . . . We persistently and with stupidity ineffable assume that musical education is all in performance. . . . Now this is just as absurd as it would be to estimate the child's literary knowledge by what it can actually read itself. Over against all this lies the far wider domain of musical appreciation. Children should, in fact, hear vastly more music than they sing or play; and this should be a prominent, if not a predominant, part of their musical training. They must listen and be taught how to do so by abundant experience and practice."

Under the influence of music the soul is inspired to dream dreams and see visions of a vastly larger life than

ever illumines our pathway at any other times. "We glimpse the abysses of woe and the shining pinnacles of every joy."

c. Æsthetic education. A few facts about æsthetic emotion must suffice. Its probable origin and evolution we must omit. It is manifested in all peoples, in all tribes, among the savages, even in animals, and is found in all countries and in all ages. In nations of æsthetic repute it has only taken another form of development. The expressive side is symbolic; that is, it represents some feeling or state of mind. Æsthetic emotion is therefore as unlimited in its scope as the feelings and ideas of man. It also employs the idealizing power of the imagination. Artistic enjoyment differs primarily from all other emotions in that its end is individual, immediate pleasure. A beautiful sunset, as an æsthetic emotion, belongs to me and to that immediate moment. It is not for others, neither is it aimed at my self-preservation unless quite indirectly my pleasurable frame of mind contributes to my physical health.

Elements of æsthetic enjoyment. Æsthetic enjoyment as we find it in ourselves will usually be found to contain three elements. A beautiful sunset contains (1) a pleasing *sensuous* element which results from a stimulus of strong or effectively blended colors; (2) for the artist, and, in a degree, for all who know some of the laws of light, physics, etc., there is present an *intellectual* element. The uneducated find little real æsthetic beauty in our great art galleries. There is, at least, some æsthetic value in the ability to see proportion, symmetry, and *unity in variety*. Again, cultivated attention is essential to the appreciation of all the finer distinctions in art. (3) If this impression

be associated in memory with a sunset, seen in childhood or at sea, there will be introduced the *associative* element, always present in such a high degree in all religious and artistic enjoyment. It is this that gives the Madonnas such a preponderating effect over other works of art. The clothes worn by foreign peoples appeal to us as ugly, and, in many cases, ridiculous; yet those who wear them come to consider them as beautiful — time and the association of other ideas are the only agents needed to produce this change. Those who succeed in overcoming their fear of snakes tell us that snakes are really beautiful. The variety of æsthetic tastes, the impossibility of any one standard, and also the power of the associative element in music and literature will be considered in the section on Psychology in Art.

Æsthetic education should begin early. The general principles suggested under altruistic education will apply here. Few people realize the necessity for early development of an appreciation of the beautiful. I have just returned from a school filled with neglected children ranging in age from twelve to fourteen years. They care little or nothing for the appearance of their faces and hair. Conditions that would be perfectly satisfactory to them would be a shock to thousands of children even much younger, but surrounded by different environment. These children are intelligent, and you may readily develop that side of their nature; but do not dream that you have the same chance to develop their emotional life. Habit and conditions have set their mark on these children. Besides this we now know that children have a period in their development when poetry, music, art, etc. make their

strongest appeal to them, and when it is easiest to make a lasting impression. Such periods we call *nascent stages*. It is conceivable that a natural-born musician like Mozart, if deprived of the privilege of hearing music until the age of ten or twelve, might ever afterwards have only a common interest in this art. *Early æsthetic education is imperative*. When habits and tastes are already formed, simply to say that you may *will* to enjoy or not to enjoy, to be happy or unhappy, is sheer stupidity.

Æsthetic enjoyment must be inner and genuine. What intellectual state could be more miserable than that found in those poverty-stricken, abortive souls who daily try to pose as lovers of music, art, literature, and science without a single idea or feeling of their own! They run to everything that comes along and generally read all the comments of the press, but all the while the carrying-out of the pretense becomes more and more difficult. If the fashionable world were only as honest as that humble Darwin, there would be thousands of confessions revealing souls more barren, so far as music, poetry, and art are concerned, than his soul ever was; and we would no longer display our poor psychology by citing his confession. Children must not have their æsthetic ideas imposed on them from without. To develop in children, directly or indirectly, the tendency to rely on some one else and to quote some one else as an authority as to what is beautiful or otherwise, is erroneous and antipedagogical. We should always be able to make a child *feel* what we say and let him be true to *his feelings* even if they chance to differ from ours.

d. The culture of the intellectual emotions. All intellectual activity is accompanied by feeling in some degree.

Often it may be so intense as to become a powerful emotion. Intellectual curiosity and a deep thirst for knowledge often dominate every other tendency of life. These forces dominated Socrates, and he was so able to impart this spirit to others that Alcibiades says: "My tears are poured out as he talks. Often and often have I wished that he were no longer to be seen among men. But if that were to happen, I well know that I should suffer far greater pain; so that where I can turn, or what I can do with this man, I know not. All this have I and many others suffered from the pipings of this Satyr." Curiosity is the bud of intellect, and it should always be encouraged. All teaching that destroys it is fatal.

Great truths partly revealed and partly concealed should ever stare the youth in the face. Finality in teachers and textbooks is the worst enemy of intellectual development now in use in our educational systems. Something on which a trained imagination can work is a powerful factor in intellectual emotion. No greater calamity could befall the human race than the final solution of all our problems. But fortunately such a state of mind comes only to the ignorant, who think they know all things. A sense of the ridiculous, of the ludicrous, of wit, of humor, should be cultivated.

Finally, there is a serenity of soul that comes from intellectual poise. We read it in men whose wide knowledge enables them to look calmly on at the social, ethical, and religious struggles, knowing in some degree the outcome. *Our goal is enlightened feeling directed to healthy, sane action.*

CHAPTER IV

FOUNTAINS OF HUMAN CONDUCT (CONTINUED)

VI. APPERCEPTION

As a spring of human life which exerts a great modifying influence on all other mental processes and upon human conduct, few can be given a more important place than what should properly be included in the term "apperception." One inevitable conclusion of the very topic we are considering is that we should not introduce new subjects by words foreign to the student; especially is this true should the words have a variable meaning in scientific circles. Apperception is one of these words; but owing to its importance in this connection, to its wide use in education, and to my inability to separate its essential element — *interest* — from its minor qualities, I justify its use here. Many writers treat the subject in connection with other topics only. It is also quite customary to treat all these springs of life after perception, attention, association of ideas, memory, imagination, and reason have been considered. But the chief object of these *six fountains of conduct* is to show how such processes cannot be properly comprehended without some previous comprehension of these springs of life. Witmer has a similar idea when he presents *apperception* as the first chapter in his "Analytical Psychology."

Examples of Apperception. With the theories and different applications of this word it is not wise to deal. Let everyday examples develop in the mind of the reader a practical definition suitable to this elementary work. I once saw a little girl of two and a half years patting a large fur cape thrown across the shoulders of a lady in front of the child, and at every stroke the child said "doggie." Experiences with a large black dog had so completely taken possession of the child's mental consciousness in the past as to cause all other qualities present in the sense impression to be ignored. A number of children seeing for the first time a zoölogical garden or a circus will each name the animals according to his past experiences; and, as far as they can be made to fit, according to his *chief interest*. The tiger will be saluted as "kitty," and others in a similar fashion. Observe a number of children endeavoring to interpret the "funny page" in the Sunday newspaper. The mind is very early directed to the *meaning aspect of all impressions*. This is not done by conscious comparison, but is forced on by a content of the mind that does not wait for comparison such as a scientist uses in classification. *The child is in the main unconscious of the past feelings and ideas that now direct his attention to this or that point.* The statement made by one writer that association and thought are only disguised apperception is too wide a use of the word; but *apperception is largely the power behind these processes.*

Any teacher can daily discover dozens of similar cases in children. But apperception is not confined to the sense perceptions of children. Experience does not tend to correct these false impressions of the external world, but only

to intensify them in other directions. To illustrate apperception the Germans use a fine story, the essence of which is duplicated a thousand times a day in every city. A boy conceals himself in a forest to watch the passers-by. Soon one man says to his companion, "What a fine stick of timber," and the boy says, "Good morning, Mr. Carpenter." Another comments on the size of the bark, and the boy says, "Good morning, Mr. Tanner." Soon another declares the land good for wheat, and the boy says, "Good morning, Mr. Farmer." Still another thinks it a good place for squirrels, and the boy says, "Good morning, Mr. Hunter." The same thing is before the eyes of these men, but their deep semiconscious and subconscious interest and past experience determine what each shall *see*. The process is not one particle different whether half a dozen men of different callings read the same book, listen to the same sermon, hear the same political argument, view a beautiful painting, witness a mob, or gaze on the beauties of nature. Each has already within him the powers that will mainly determine his mental reaction to these things. We shall never know the truth about those who are held up to us as heroes or as villains. Whether we see their acts in daily life or read of these acts in history, previous feelings and ideas will largely determine what interpretation we shall put upon them. The simplest tone of voice from one who has insulted us, a look from our enemy or from one who has suspected us, or a meaningless remark made to others, even the silence of those whom we mistrust—all these have a different meaning for us from that conveyed to any other observer. In the interpretation of such things those whom we call sensitive cannot even approximate the truth.

A thousand different denominations read the same Bible and each puts a different interpretation upon it. Is this difference due to different degrees of intelligence, or, as some think, to intentional misinterpretation? The broad-minded student cannot accept either. In our low degree of culture we considered others either dishonest or ignorant. The average Christian who reads the ten commandments of Buddha never dreams of putting into them what the devout Buddhist sees concealed therein; the reverse is equally true.

In all cases similar to the foregoing it is of fundamental importance to note *how absolutely certain we are that our interpretations are the correct ones*. Do we not know when people intend to insult us? Do we not feel and know that sensitiveness and prejudice do not determine our judgment? A gentleman informed me that he was summoned to serve on a jury in a criminal case. When asked if he had any prejudice for or against the criminal, he said, "I do not know." He was asked to stand aside, while one after another said Yes or No and was rejected or accepted. He was the only one of many who realized that his judgment might be influenced by *apperceptive processes* not then in the focus of consciousness.

Some states prohibit butchers from serving on a criminal jury. Do you see why? It is the entire history of a man's life that goes into his judgments, interpretations, and conduct. How can any one interpret history without a knowledge of apperception? When the North and South stood armed against each other, each declaring the other intentionally and knowingly wrong, each interpreting the same constitution and laws differently, each charging that the

other was dominated by selfish interest only, what should be the verdict of the true historian? Shall we not proclaim that the vast majority on both sides were honest and conscientious? But, at the same time, was not this difference of interpretation due chiefly to the *unconscious influence* of long-accumulated interest, prejudice, and envy?

Nowhere does apperception exert such a powerful influence as in political and religious presentations. This is due to the intense personal interest, accumulated feelings and ideas, and to habits of thought, all of which enter into every new or contrary idea. The fundamental aim of the foregoing examples has been to bring out the chief element in apperception — *the power of past experience, feelings, and ideas to modify unconsciously every new presentation, and to thrust upon us the feeling that we have perceived correctly the essentials and given the proper interpretation.*

Suggested Apperception. What is here designated as *suggested apperception* is treated by Witmer as preperception under apperception. As a method of approach to this topic examine Fig. 1.

Fig. 1 is only thirty-nine straight lines symmetrically arranged on a white sheet of paper, yet it may be seen as any one of four or five different things. In the first place it is possible to think of it simply as so many straight lines. Investigations strongly indicate that many high-school students execute drawings that pass with high merit, yet they never see anything but lines on a plain surface. Observe this figure. It is a staircase you are about to ascend. Is it not there? No, you are mistaken; it is not

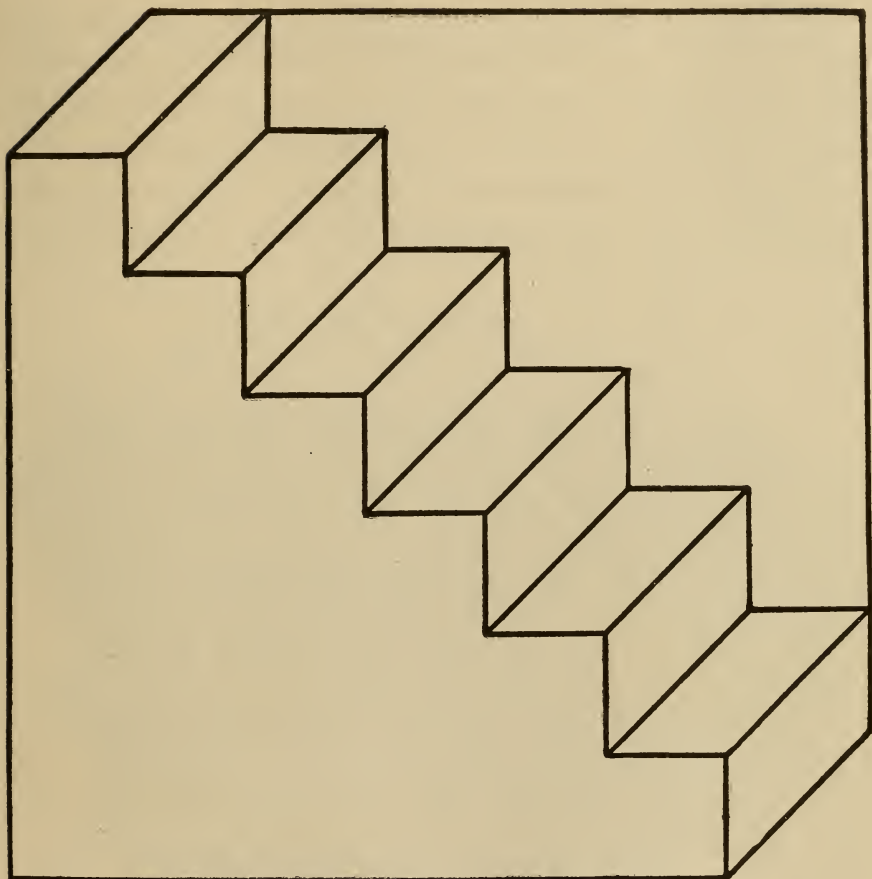


FIG. 1

a staircase ; it is simply a cardboard, bent in the shape of stairs and suspended on a white wall. Think intensely of this and see if you do not get it. You can, if you first fix this image vividly before your mind. Now look at the angles. Are they right or obtuse ? Think intensely and you may get what you look for. "The anticipation of a perception by a thought, idea, or mental image," Dr. Witmer calls preperception. I prefer to designate it *apperception due to direct suggestion*.

Let us examine a few more figures, in order that this idea of *direct suggestive apperception* may be definitely fixed. Fig. 2 is not quite so simple as you may think. Is it only a design in black and white? Do you see it? Now think of a series of six-sided boxes with white edges, piled one upon another. Do you not see them? With eyes partly closed,

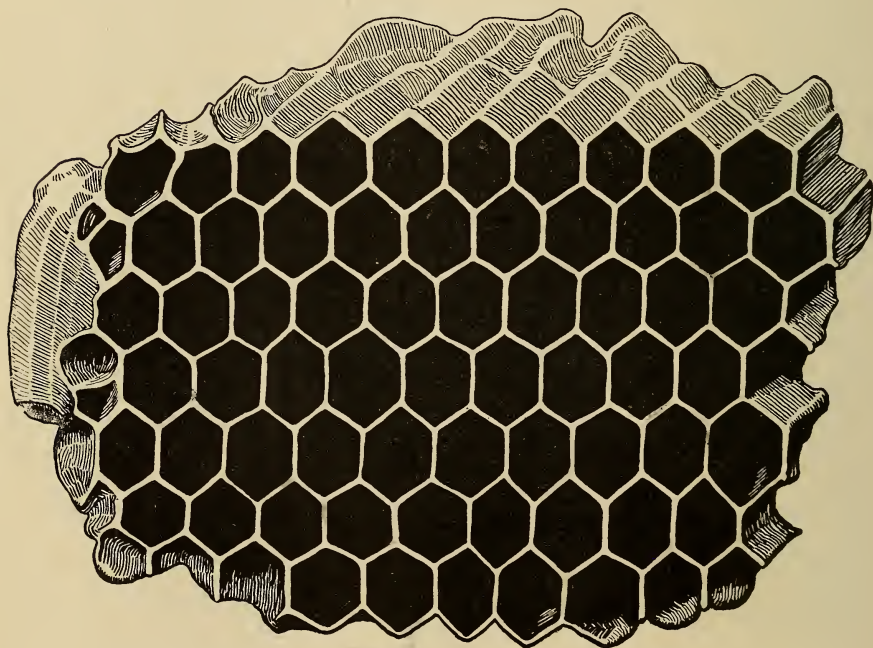


FIG. 2

look steadily at the black parts and think that they are only six-sided holes in a white surface. But after all it is only a honeycomb. *The degree of persistency with which it tends to appear as a honeycomb will depend upon our previous experience, for its objective reality is only dark spots on a white background.*

Fig. 3 consists of many regular, straight lines on a white background. At first they give the appearance

of a design containing diamond-shaped figures. Think of three rectangular boxes to your left and two to the right, with the open ends toward you. Look, for they are there. Now make the section *abcd* project in the center, forming right angles from you, and you may see the boxes to the left with *closed* ends projecting. Note how you can make the center of *abcd* project or recede, forming right angles to or from you just as rapidly as you change your thoughts about it. From the right end look at the figure lengthwise and note the effect.

Fig. 4 is a black ball on a white background. Do you see it? No; you have made a mistake. It is just the reverse. Perhaps it is only a circular design in black and white.

The reader must not lose sight of the fact that it is *apperception* due to past experience that enables us to name these lines "staircase," "honeycomb," "boxes," "ball" etc. The images are not inherent in the lines, but they are due to past experiences concealed in the mind. The savage who never saw one of these objects will, with just as good authority, make something else out of the lines. What is true of these lines is also true of Shakespeare's "Hamlet,"

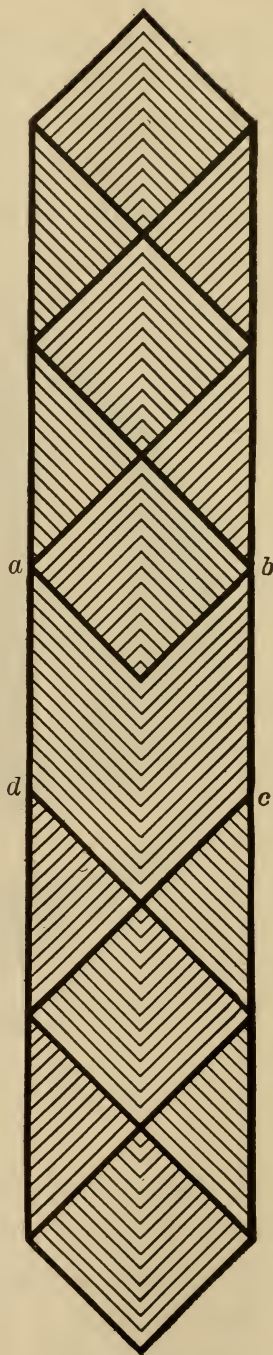


FIG. 3

save that the conditions and possibilities are infinitely more complicated. The true teacher of literature simply stimulates *apperception* by appropriate suggestions. The judgments concerning many characters depend upon a suggestion, whether autosuggestion or otherwise.



FIG. 4

Fig. 5 may be seen either as a duck or a rabbit, according to which is uppermost in consciousness. I showed this drawing to a physician whose chief sport is duck hunting. He pronounced it a duck, and it was with difficulty that he ever saw it as a rabbit. Will not a

moment's reflection convince us that life is filled with thousands of important interpretations that rest on the same foundation as this one? Does it not often happen that a word, a look, an act, a deed, involving the peace and happiness or misery of many, a phrase in law on which hinges great destinies, a religious difference involving generations yet unborn, is as capable of a *double interpretation as this simple figure*? Is it not also true that mental *prepossession* or direct suggestion may determine the interpretation that shall dominate? How unfortunate that the study of psychology has not yet brought men to a keener realization of this universal fact of life! Let a man get a mental prepossession that you are bad and untrustworthy, and no matter what you do or say he will find a dozen ways to show wherein it differs from the acts and words of good, honest people. Between the real Roosevelt and the ideas of him there exists a gulf over which neither friends nor foes shall ever pass. Apperception and suggestion made the gulf and now maintain it. *In proportion as a man knows apperception will he grow in charity for his fellow men — even his enemies.*

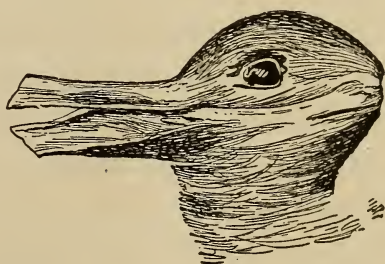


FIG. 5

With a certain background in mind we see words on the printed page that are not there. Have you never been astonished at your own misinterpretations of certain headlines in the newspapers, or at finding yourself half-unconsciously hunting for that which you condemn as

unfit for the newspapers? The literary composer cannot be trusted to correct his own proof. He is likely to see it not as it is but as it should be.

Definition of Apperception. Wide examples are the only possible road to an adequate comprehension of any definition of wide application. So we must now leave the reader to supply other illustrations. Even at the risk of criticism by those who love finality, a somewhat arbitrary, simple, and limited definition is desirable for our purposes. We will therefore consider *apperception as the unconscious or dimly conscious influence of past tendencies, feelings, ideas, and experiences to modify new experiences, impressions, feelings, and ideas.* The most important words are "unconscious or dimly conscious influence." *The fact that this influence is not distinctly felt in consciousness produces that feeling of certainty that our interpretation is correct.* This limitation of apperception to the unconscious or dimly conscious influence of the past will prevent us from confusing it with the entire association of ideas and the thought process. While one object of this presentation is to show that apperception is a power always lying behind these and other processes, yet it is unwise to confuse them.

Factors determining the Strength and Direction of the Apperceptive Power. 1. *Strong natural impulses and instincts* unconsciously influence the interpretation of any present experience. This you may witness in animals, children, and men. War is instinctive, and every presentation pertaining thereto must be submitted to a certain amount of this influence. The play instinct in children

demands its right in determining the line of their observation and interpretations. The love instinct unconsciously injects itself into thousands of adolescent interpretations. The same love novel has quite different meanings to the same person at different ages.

2. *Strong personal interests* are like "coming events that cast their shadows before." How shall the millionaire, even though he consciously and honestly try, ever see the glories of socialism so long as his own personal interests unconsciously cast the shadow of his own doom before him? How shall the poor and distressed whose heart's desire is foreshadowed in socialism see its possible dangers? How impossible for them to believe that their *pure* hearts could ever become ensnared by a blind thirst for wealth if only the opportunity presented itself! How easily we believe the slanders of graft and dishonesty when made against those who stand in the way of our deepest desires! The owner of slaves *must* view slavery differently from others. To own a big silver mine is a great help toward making one sensitive to all the arguments for free silver. To be a great banker in New York is enough to blind the eye of reason to these same arguments. I insist that, in nine cases out of ten, neither the capitalist nor the socialist, the saloon keeper nor the minister, the believers in slavery nor their opponents, are *hypocrites*. *Their own interests unconsciously blind them until they cannot see things otherwise while conditions remain as they are.* Do not such facts alone make reasonable a demand for the diffusion of some practical, psychological knowledge? "It is worth noticing that back of the act lies an interest; in the act lies the seed of a habit; ahead

of the act lies behavior, which grows into conduct, this into character, and character into destiny."

3. *Mental assimilation* feeds this hidden fountain of apperception. Schiller once said that no knowledge is effective until it has been dipped into the nectar of the soul and lost its identity as knowledge. We may safely say that many students and college professors mistake the means for the end in education. Facts are valuable mainly for creating an attitude of mind and for developing permanent interests in the great problems of life, and not as material to stock the mind like a great and well-classified museum. What we have forgotten has a thousand times more influence on us than what we remember. We can no more escape from the results of our past thinking, even though it is forgotten, than we can escape the law of gravity.

4. *Strong sentiments* of love and hate, of prejudice and jealousy, of religion and patriotism, give a domination to apperception perhaps unequaled elsewhere. In general the individual is either unconscious or dimly conscious of this influence. He honestly believes his interpretations correct. In many cases, no matter how kind your acts may be, they will be given exactly the opposite interpretation; and so evident and sincere is this estimate in the mind of your interpreter, that attempted explanations make it worse. In like manner the religious conservative has always viewed his brother heretic as intentionally wrong and dishonest, and has only scorned his attempted explanations.

5. *The power of mental habit becomes dominant.* The more limited the intelligence and narrow the experience of an individual the more powerful is apperception in its

accustomed line of activity. For example, it is usually labor lost to attempt to convert to a modern scientific view a man of maturity, whose reading has been narrow and whose thinking has been limited to a simple phase of life. Such people are usually the most certain of their ideas and most confident of the correct interpretation of any new ideas. This they manifest in their irony, sarcasm, and contempt for new views. New ideas are either absurd or they are proclaimed to be old ideas under another name. The history of the idea of evolution would furnish volumes of illustrations.

6. *Certain physical conditions may greatly facilitate or retard apperception.* Illness and fatigue, which have a general weakening effect upon the body, modify and prolong the apperceptive process. Nervous disorders which result in despondency give the apperceptive basis for a pessimistic interpretation of everything. The fact that nervous fatigue and exhaustion are never distinctly in consciousness as such, while their effects are unconsciously manifested in all the physical activities, makes any explanation to the individual useless. Modern research is giving us some idea of how much the soul activities are dependent on the coöperative action of the nervous system.

So at least these six elements or sources of apperceptive power may be distinctly recognized. All of these enforce the essential features of the tentative definition suggested above. It is necessary to reiterate that psychological processes are so intimately related that some repetition is necessary; but viewing things from different standpoints prevents that narrow condition of thinking fatal to all study.

Is Apperception a Good or a Bad Thing? Can we free ourselves from it? If not, is it possible ever to know the truth, at least outside of the mathematical quantitative sciences? The first question might be asked about any of the conditions of human life, wherever we can imagine how it might have been bettered *in the making*. The greatest evil concerning apperception lies in the *ignorance* of its existence and of its power in directing our interpretations. On account of this ignorance, persecution and hatred exist where charity and tolerance should predominate. Bigotry and dogmatism reign where humility and intellectual progress should be. We can free ourselves from the extreme dangers of false interpretations just in proportion to the breadth of our knowledge and experience. But the law is inevitable. The age at which such knowledge and experience is acquired is important. A man whose apperceptive tendency is well fixed may later acquire a certain verbal facility in views contrary to his, but this remains essentially objective and insufficient to modify, to any marked extent, his interpretations. So, reasonably early and wide knowledge, wide experience with mankind, and the psychological consciousness that we are ever likely to give a false interpretation due to our past experiences, are the main avenues of freedom from the dangers of this psychological law. Darwin once said, "Learning is humble compared with the pride of ignorance."

That this very psychological law forever bars us from *absolute truth* in all matters where our past experience enters into our judgments, — social, political, religious, moral, æsthetic, and judgments of the character and conduct of our fellow men, — *should be frankly admitted and*

made the basis of all such thinking. All boasted finality in interpreting the *past* is absurd. Well may we assent to Goethe's words:

Ay, truly! even to the loftiest star!
 To us, my friend, the ages that are passed
 A book with seven seals close-fastened are;
 And what the spirit of the times men call,
 Is merely their own spirit after all.

Having called your attention to six great springs of human life, — *the Will or Desire to Live, Instinct, Imitation, Habit, Feeling, and Apperception*, — we shall not pass to the technical and physical part of our subject until we have examined the great modern idea of *evolution*. As evolution is the foundation of any proper interpretation of psychical phenomena and of the social sciences, logically it should come first. But Chapters I, II, and III furnish a background for the comprehension of what is now to follow, and are doubtless more interesting and practical. The material in these chapters must have developed in the mind of the reader the conception of evolution without any definite presentation as such; it is all evolutionary in its nature. Hence, in the following chapter we pass to a more systematic and comprehensive explanation of that material and the facts which it contains.

CHAPTER V

RELATION OF PSYCHOLOGY AND EVOLUTION

General Statement. The dominant idea of the past fifty years has been Evolution. Without some notion of what is involved in this, the greatest generalization of the human race, the true significance of even the commonplace things of life is impossible. Within this short period evolution, by appeal to man's judgment and sense, has peaceably and quietly conquered the whole scientific world.

When one has finished a good review of the progress and practical application of nineteenth-century science, so vast and accurate in detail, with so many false views and theories buried, with such noble surrender in the face of facts as witnessed in that memorable Weismann-Spencer controversy, he arises as from a dream; and this feeling that it can be only a dream is greatly intensified when he turns to contemplate our social and moral organizations, our legal notions of crime and administration of justice, our political machinery and our educational systems. How can such "hit-or-miss" methods, such contradictory ideas, such clinging to theories in the face of facts, exist side by side with this mighty onward march of science?

Alfred Wallace once said: "Compared with our astounding progress in physical science and its application, our system of government, of administrative justice, and of

national education, and our entire social and moral organization, remain in a state of barbarism." Nothing but a thorough knowledge and careful application of the laws under which these institutions have developed can bridge this chasm. If the deepest meaning of the world is not moral, then it has no meaning, or at least must remain an enigma to man. Yet, concerning the general development of morality in the human race, and concerning the physiological and biological conditions of morality, the laws of heredity and their effects upon morality, it is safe to say that there are few subjects on which ignorance is so universal — yes, worse than ignorance; myth and superstition usurp the place of knowledge. The whole high-school course should be saturated with the great doctrine of evolution and modern psychology; not necessarily as separate studies, but the teacher, once master of these subjects, will make them the background of all teaching whatsoever. A true knowledge of man and his institutions and a knowledge of evolution are inseparable. Any adequate idea of psychology involves some comprehension of evolution.

Many hundred years ago Buddha declared that all living beings are what their past actions have made them, and that the law of cause and effect is uniform and without exception. The universality of cause and effect, the dominating influence of the past, the power of animal instincts, are vital truths which evolution has proclaimed with unmistakable evidence, and which are indispensable to a proper comprehension of human life. A simple presentation of evolution in such a manner as to avoid that religious shock that beginners sometimes feel, will now occupy our attention.

A remarkable statement of evolution was published in 1784, in John Wesley's "Compendium of Natural Philosophy," in the chapter on A General View of the Gradual Progression of Beings. We read of the "ostrich with the feet of a goat which unites birds to quadrupeds.

. . . By what degrees does Nature raise herself to man? . . . How will she rectify this head that is always inclined toward earth? How change these paws into flexible arms? What method will she make use of to transform these crooked feet into skillful and supple hands? Or how will she widen and extend this contracted stomach? In what manner will she place the breasts and give them a roundness suitable to them? The ape is this rough draft of man, this rude sketch, an imperfect representation which nevertheless bears a resemblance to him, and is the last creature that serves to display the admirable progression of the works of God. . . . Such is man in the highest degree of earthly perfection. But mankind have their gradations as well as other productions of our globe. *There is a prodigious number of continued links between the most perfect man and the ape.*" What a marvelous statement from such an unexpected source!

The theory of evolution as conceived to-day is based upon the orderly and systematic arrangement of an almost innumerable number of otherwise ordinary facts about living organisms, about the development of mind, morality, religion, and all of man's social institutions. These facts bear such a relation to each other as to compel every one who thoroughly investigates them to conclude that plants and animals did not suddenly come into existence as they are now, but that their present form is the result of a

long, long series of changes. Not only do individuals and species arise in this manner, but institutions, governments, languages, and religions obey the same general laws of development. The conception and development of this world-sweeping idea we owe mainly to such mighty souls as Schelling, Oken, Goethe, Lamarek, Darwin, Spencer, Wallace, Huxley, Haeckel, and Weismann. At the present time thousands of men are daily employed in subjecting to the severest criticism all the details of this wonderful theory. In these details many modifications take place yearly; but it is safe to say that all research and every test have with one voice proclaimed the truth, value, and universality of this great Darwinian vision. No thinking individual need any longer apologize for believing in evolution; he need rather apologize for lack of ability to comprehend it.

Just reflect a moment on what changes have been produced through the domestication of plants and animals within the short memory of a generation. Growers and breeders find countless variations — some for better and some for worse, some in color, some in size, some in strength and endurance, some in swiftness, some in beauty of form and shape, some in pleasure afforded man, some in gentleness and kindness, some in reproductive power. They *select* the most suitable males and females, and, breeding from these, they soon startle the world with their biological productions. But Nature runs a laboratory infinitely larger than all the other laboratories in the world, and still holds locked in her bosom many of the mysteries of its operation. Evolution as a science rests entirely upon the discovery and systematic arrangement of some of these mysteries.

Natural Selection, or the Struggle for Existence. The number of creatures born and desiring to live is immensely in excess of what the conditions permit to live. Any species, even of a low degree of fertility, if left to live and die a natural death, in a few centuries would fill the earth. The slowest animal in the world to propagate and bring its young to maturity is the elephant. Yet, if all the offspring of a single pair of elephants lived, propagated, and died a natural death, in seven hundred fifty years there would be nineteen million elephants. "Small as bacteria are," says Dr. Hodge, "they possess a power of growth and multiplication not paralleled by any other living forms. It is estimated that if all the oceans were nutrient broth, with an average depth of one mile, the progeny of one microbe might fill them full in less than five days." This is prevented by the incessant *struggle for existence* always taking place among species as well as among individuals of the same species. No two individuals of any species enter the world equally equipped or with equal tenacity of life. Thus Nature, not by deliberation but by conditions, constantly selects those best fitted to meet the *conditions* in which they must live. Hence we have two great terms of evolution — *natural selection*, which is the very complicated process by which the vast majority of organisms are weeded out, or soon prevented from propagating their kind; and *survival of the fittest*, which is the product of natural selection.

Natural selection, or the struggle for existence, is not carried on simply by brute force. Many elements enter into it — far too many to enumerate here. In the first place, heat and cold, rain and sunshine, natural conditions

of country, floods and droughts, inequality of hereditary force and tenacity of life, intellectual superiority or inferiority of individuals and species, difference in ability to resist disease, presence or absence of other species, mode of reproduction, number of offspring, care and protection of the same, are factors in natural selection. Also tenderness, kindness, unselfishness, self-sacrifice, become in the higher stages of evolution means of carrying on the struggle and of sifting out those least fit to survive. *Might*, therefore, is by no means the sole factor of this complicated struggle. If any nation would to-day substitute for its army and navy, *love and charity* for all mankind, it is at least conceivable that such a nation might make so deep an impression on other nations as to have a better means of survival than she now has. However, we have reason to hope that, concerning the ages yet unborn, this is not simply a wild dream. While justice, love, and charity may never become the sole standards of survival, yet the struggle among men has been and will doubtless continue to be made milder by these factors. It is hard to make war on unadulterated love and justice. The thoroughly disarmed Quakers of Pennsylvania seem to have been at no disadvantage in the struggle for survival among the Indians. Spinoza or Socrates could confront a mob and, by that justice and truth that radiated from them, stultify the whole of it.

Survival of the Present and Survival of the Past. Do the fittest survive? Here we encounter a question which is often a great stumblingblock to many. Survival of the fittest is not synonymous with survival of the *best* in an absolute sense. You may be earning fifty dollars per month,

which is the best *conditions* will allow; but you may imagine *conditions* that give *better* results. When we were children certain ideas survived in us as the fittest because conditions would permit of no other. First, do not forget that everything in this world is subject to the laws of evolution — even *governments, institutions, religions, feelings, and ideas*.

Again, there is a survival for this moment and a survival for each and all past moments. The survival of this moment could only be made the survival for any past moment by changing the conditions which made the past what it was. For example, we may now think single marriage the proper survival of all sex relations; but what chance had this idea to be the dominant survival among low, wandering, savage races? Or how could justice, love, and charity now be the test of survival among the *cretins* of Aosta, who go about with their hands up, their mouths open, and their minds empty? “Democracy,” you say, “is the survival of the fittest among governments.” But how could it be the survival of the fittest for the Hottentots, either in idea or as an institution? What is true of these cases is true of every other condition that may be mentioned, only in most cases the factors are so many and so complex that they are not discernible. In reality our thinking on such lines is always accompanied by a suppressed condition — *if things were so and so*. This condition we tend to ignore in our thinking.

Individual and Collective Survival. There is also an *individual* and a *collective* survival. Nothing can be more important than to note this in regard to our feelings and

ideas. In my mind it is wrong to make war on any people because they resent our efforts to give them our religion. That idea is the survival of the fittest in *my* mind. But history shows that even down to the present time it is not the idea that has survived in the mind of the public. As an American, should there survive in your mind the idea and feeling that a monarchy is better than a republic, for you this would be the survival of the fittest both in institution and in idea; but it shows no sign of being the survival of the fittest collectively. Among our ideas and feelings such a struggle for survival is always going on.

Any ideas and feelings that have the right of way in your soul must, from your basis of consideration, appear to be the most fit to survive, even if the people round about you hold contrary ideas and feelings. The first is *individual* survival, the second *collective* survival. Have we not advanced far enough to see that what is most fit for any given individual or any given age is not necessarily most fit for all other individuals and for all other ages? Do you see the two different standards by which the *fittest* is tested? A young minister of my acquaintance feels very intensely that all modern science is wrong. When reminded that this is not the attitude taken by most of his associates, he asked, "Do you believe that all ministers are religious, and have taken their guidance from God?" This implies how firmly he considers *his ideas the fittest to survive*.

It is hoped that any class or individual reading this book will ere long be made conscious of the struggle of ideas. In any class the final survival of ideas in a few

individuals may be quite different from the general survival of the ideas of the class as a whole. Nevertheless such individuals must consider theirs the *fittest to survive*. These examples, with others that will readily be suggested, should leave no doubt as to the proper answer to the question: "Do the fittest survive?"

Sexual Selection. Among animals of the same species will be found remarkable variations in color, in sweetness and power of song, in the power and manifestations of instincts, in organs of defense, etc. In nearly all the animal world the males struggle, often unto death, for the possession of the female. Thus the strongest, shrewdest, and best equipped propagate their kind. The female is also active in selecting her mate. Color and song are the courting equipment of the animal world. In some mysterious way form, color, song, and movement stimulate the sex instinct and thus furnish a basis of selection. Darwin called this *sexual selection*. Increased biological knowledge gives more and more importance to sexual selection as a factor of evolution.

Another kind of sexual selection has recently been given great importance as an evolutionary force. It is an instinctive tendency of *like to mate with like*. In a wide sense this is evident to any one, but the principle has been recently applied, not only to account for failure of species to cross, but to show how species naturally break up into smaller and smaller groups, as variations come within the species. For example, in nature, should variations of white or black ducks occur in a species, or unusually small or large ones, there may exist a tendency for white ones to

mate with each other, all things else being equal; and so on with the black, the small, and the large ones. A very exhaustive work recently published suggests that this principle applies strongly to human marriage. In another chapter we have found the sex instinct manifesting itself in human life as a true psychological explanation of many acts otherwise incomprehensible.

Sources of Advantages and Variations necessary for Advancement and Survival. Now I am anticipating in the mind of the reader questions of far-reaching import. Whence arise the multiplicity of individual variations which furnish the basis of natural and sexual selection?

1. *Acquired variations.* During the life of an organism any of its parts will develop or degenerate according as such parts are used or fail to be called into use. Mode of life, food, climatic conditions, and a thousand other things may produce changes in the organism during the run of its natural life. But many thinkers now believe that these modifications are rarely, if at all, transmitted to the offspring. They point to the fact that scars, burns, mutilations, amputated limbs, blindness acquired during the lifetime of the individual, show no signs of appearing in the children; while any deformity or exceptional quality which the child brings into the world, tends to reappear in the offspring. Defective hearing and sight, harelip, double thumbs, idiocy, imbecility, criminal tendencies, special gifts or talents, etc., due not to conditions in life but to what the individual brings into the world, all tend to reappear in the offspring. Into this memorable and scholarly controversy we will not enter save to say that

three things seem evident. First, that the lower an organism is in the scale of evolution, the more likely are these modifications to appear in the offspring; while the higher it is, the less likely and the *more indefinite will be their appearance*. Second, that psychic modifications, if they appear at all, tend to appear as vague and indefinite feelings. Third, that poisons, such as alcohol, may act upon the germ cells so as to produce modifications in the offspring, but not of any specific determined nature.

2. *Spontaneous variation*. All evolutionists are agreed that whenever two germ cells unite to form a new life, there is a strong tendency to vary from the original type. Recent research and artificial crossing of plants and animals have only begun to reveal how enormous this variation may be. Since the time of Darwin we have called this *spontaneous variation*; not that it is without a cause, but simply that the cause is unknown to us. Universality of causation is the corner stone of evolution.

Recently extensive investigations have been made concerning the *causes of variations*. Many writers now designate these spontaneous variations, originating from and depending on the inner nature of the germ cell, as *discontinuous variation* or *variation by mutation*. One writer has presented a large volume entitled "Evolution by Mutation." Discontinuous variation suggests a considerable degree of unlikeness to the parents, or, in some cases, a radical difference; while *spontaneous variation* primarily implies that the causes are hidden in the nature of the germ cells. By exposing the eggs and pupæ of insects to abnormal conditions of heat, cold, and other disturbing factors, it is found that extreme variations will

occur in a small proportion of those treated, and milder variations in a much larger number. These experiments indicate that extreme conditions may upset the stability of the germ cells; but the alterations do not necessarily occur in the same line as the normal variation, or in conformity with the environment. After all, it goes back to *spontaneous variation*, for it is the nature of the germ cell that determines whether it will vary and to what extent. Also, germ cells, even of the same parent, are demonstrated to be unlike in their deepest nature.

Note the great variety of white fowls now in domestication. Such are the products of these variations. Internal causes, not outside conditions, have produced these effects. In nature white fowls were generally at a great disadvantage in the struggle for life; hence they are rarely found. Many believe that spontaneous variations are the only modifications sent on to the next generation, and that such variations furnish all the material for selection.

3. *Rhythmic tendency to vary.* The far-reaching experiments conducted by De Vries and others in recent years strongly indicate that species have rhythmic periods of strong tendency to vary in many directions from the general type. This theory states that after a long period of relative stability the entire species is moved by an inner tendency to vary, and under favorable conditions change is very rapid. This theory of transition of species by *variations lying deep in the organism* makes possible more rapid changes than were conceived of by the early writers on evolution. All the evidence seems to indicate that the later writers are essentially correct on one point — that the primary causes of variation are inherent in the individual

organisms and not in the experiences or behavior of the individual during its lifetime. In the last edition of "The Origin of Species" Darwin admits that he has not previously paid sufficient attention to these *inner forces*.

Evolution of Language. In order to comprehend the general processes of thinking, to understand education aright, to clear up the many tangles in morals and religion, nothing is more important than a thorough conception of the evolution of language. Countless are the educational and moral blunders and crimes committed under the assumption that sometime, some place, somehow, words dropped down from heaven with fixed, ready-made meanings; or, as Paulsen says, that some clever fellow among these speechless men sat down one day and devised a language, and then called a convention to promulgate his discovery. Pray in what language did he call the convention? Did one invent verbs, another adverbs, another conjugations, another declensions, and so forth? As well say that intelligence was similarly invented.

John Fiske tells us that previous to this discovery of the evolution of language, "no end of books were written to prove that all known languages were in some way descended from Hebrew," because it was presumably the language of God and therefore the uncorrupted dialect of mankind. All this is labor lost. Language was never made nor invented; it simply grew, and keeps on eternally growing and changing. Yet thousands of people go on proclaiming one fixed and only correct meaning for words, which may be obtained provided we can chase it through roots and relations enough. Others teach bare

words as if they had some magic power to cause a corresponding knowledge to spring up in the soul.

What is language and how did it come into existence? Without an adequate answer to this question morality and religion soon come to exalt *form* above *content*, and deprive the individual of all consciousness of natural internal insight. I in no wise depreciate the value of philology and the science of language. It is the superstitious worship of words, of the past, and the ignorance concerning whence comes the meaning which we daily put into words, that are alarming.

In the widest sense language is any gesture, sign, or sound by which one individual is able to make others aware of feelings, ideas, and states of soul, similar to those that prompted such gestures, signs, and sounds in him. On the supposition that a parrot puts no meaning into the many words he learns to utter, we could not properly speak of such vocabulary as the parrot's language. Neither can we speak of the thousand or two words, whether foreign or native, that an individual learns to utter without having any feeling or state of soul corresponding thereto, as his vocabulary. The ability to communicate thoughts, feelings, and ideas to one another is not a special gift of the gods to man; but wherever organisms live in groups or herds it is coextensive with even comparatively indefinite states of sensation, perception, and feelings. We now have the necessary history to prove the development of language from the earliest to the most recent modifications of our own English speech.

The gesture-sign language so dominant among the higher animals still forms no small part of the human

language. Nearly all the ways and means of expressing the many complex emotions and feelings common to the brute creation are still preserved by man. Enter one of our modern picture shows and note how, with very slight clues, whole stories are correctly interpreted mainly by means of signs and gestures. The successful animal trainer becomes one with his animals in that he assumes their language signs. I listen to a man making a speech, to a woman paying her respects by a formal call and conversation, to a witness testifying in court, to a musical concert, to a student reciting in my classroom, and in no case are the bare words the main clue to the state of mind that lies behind the screen ; but the eye, the innumerable variations of the voice, the muscular movements, the position of the mouth, of the eyebrows, variations in color, a vast number of minor signs — all speak a language that has from long experience become almost instinctively intelligible.

The deep basis of the gesture-sign language lies in the fact that every psychic change or disturbance of the soul tends to be manifested in some motor response. G. Stanley Hall has given an elaborate account of these gestures. Greetings on meeting friends, strangers, superiors, etc., are of many kinds, and have constituted a real means of communication. Many gestures and ceremonies express social and personal relations. Often images of memory and imagination are communicated by signs, movements, and drawings in the air. Moral and immoral qualities are often designated by signs. Facial movements and changes may be so varied as to express almost every emotion known to man. In 190 A.D. six thousand so-called dumb actors were retained in Rome in spite of the

intense famine. They were the interpreters of people of unknown tongue, and some accompanied armies on their conquests to act as revealers of the lives of great men. All this was accomplished by the gesture-sign language.

In this almost mysterious ability to infer meanings from so many sources lies the main reason why no written words or books can ever more than approximate the meanings conveyed by the living speaker. The speaker always conveys to his hearers either more or less than his written words would convey. His very silence is sometimes the most powerful speech. Maeterlinck's "Voice of Silence" is a paradox not without meaning.

Music is a language far surpassing all other means of expressing the truest and deepest nature of the soul. Instinct, feeling, and impulse lie far deeper than thought and reason. Music is the expression of the former, speech of the latter.

All this proclaims that in all education, in all study of human life, we must remember that words have no fixed meaning save in so far as there exist in human souls similar feelings, sentiments, and ideas. These preceded language in its development and should do so to-day in all our educational processes. Words are the tools of thoughts and feelings, but they have no magic power to create their own content. This power of communication grew in the animal kingdom as thought developed and necessity demanded. Man's early language was an outgrowth of these beginnings and at first was largely signs and gestures. Then, in the long ages of man, one variety of communication after another sprang up; some survived and became more and more perfected; countless multitudes were lost

and forgotten. The process is not and never will be ended while there is any form of intellectual evolution. In a similar way it might easily be shown that all other institutions of man, such as governments, constitutions, social conditions, education, morality, religion, are one and all the products of the eternal laws of evolution.

Time and Change. As Darwin long ago said, one of the chief difficulties in the way of conceiving this wonderful development is our perverted and inadequate notion as to the time that man has been on this planet. John Fiske says, "We now know that, at least four hundred thousand years ago, the American continent was inhabited by human beings." Why do we not see animals becoming men? is an ever-recurring question. Can we see through a hundred thousand or a million years?

Again, evolution has limitations—yes, fundamental laws of limitation. For example, the line it takes is largely dependent upon external conditions; and probably no given set of conditions was ever exactly repeated. With the new conditions produced by the civilization of man, evolution becomes less active in the physical and more pronounced in other lines, such as moral and intellectual evolution; yet the physical has not and cannot cease. Conditions remaining practically unchanged for some time, such as the human evolution in China, tend to produce an unchanging type of organisms; hence the universal law that all things tend toward a state of equilibrium, or to a relatively stable and unchanging condition. Complete stability checks evolution in the line in which it occurs. So progress, growth, development, evolution, always mean

change — continual change. Likewise failure or inability to change and adapt to new conditions ultimately means death. Here we encounter the supreme dilemma, especially when applied to human progress. The law of progress requires not only occasional but constant adjustment to ever-changing conditions. The rapidity of such change will depend on the complexity of conditions. Our political, social, educational, and religious institutions form no exception to this law. Men are caught in this dilemma: they cling to the permanent, the unchangeable, yet every growing soul seeks progress which says, "Bury the dead and move on." Ibsen sees the struggle to hold to the past and yet the desire for progress, when he makes one of his characters tell how one night he stood on the deck, and looking on the throng of passengers, each the victim of some brooding melancholy, seemed to hear a voice crying, "There's a corpse on board."

Most reformers will give the careless thinker the impression that ere long various institutions will have made all the adjustments ever necessary, and henceforth agitation will cease. Some institutions have ceased, and more may cease to adjust themselves to new conditions, but that very hour they begin to die; and just as it is in all of Nature's vast laboratory, isolation alone can save them from death. Truly, "in the midst of life we are in death."

Evolution of Mind. The evolution of mind, hand in hand with the evolution of the brain and nervous system, is now evident. Just as in man we find the nervous system in all its stages of development, so in the animal kingdom we find mind in all its stages of development.

By degrees organisms rise to the more and more complex activities of the higher animals and man. In the individual we find this same mental evolution, and that mental develop-

ment depends upon the development of the nervous system.

In the whole animal kingdom the gradual growth of mind power has more and more made unnecessary certain physical evolution and physical adjustment. Cunningness and far-reaching instincts take the place of strength and endurance of body. Everywhere do we



FIG. 6 (After Jordan)

find development of instincts from the simple to the more complex, from the immediate ends to the more remote ends to be served thereby; everywhere do we find increasing

cunning, increasing care, and more evidence of purpose, together with developing powers of perception, budding powers of apparent forethought, memory, imagination, and thinking. *That mind has had a long evolution, that higher powers have developed out of lower ones, and that there are many degrees of these powers are presuppositions of all modern psychology.*

This mental evolution may be arrested both from internal and from external causes. The low degree of development as seen in Fig. 6, the cretin of Aosta, was once supposed to be due to persistent, internal, hereditary causes. This opinion prevailed when Dr. Jordan presented this cut as an illustration of mental degeneracy. However, success has apparently resulted from the recent discovery of the cure for this degeneracy. In 1892 it was found that cretinism might be overcome by the artificial use of thyroid extract. The treatment was tried on one of these cretins in 1893, and in 1908 he entered college. For the extent and thoroughness of this experiment we must await future developments.

We are now ready to proceed to the more technical parts of our subject, to some consideration of the mechanism used for these manifestations, and to the other powers of mind associated with and growing out of these *fountains of conduct*. The object so far has mainly been twofold: (1) to create a vital interest in the practical interpretation and study of human life; (2) to give the reader ideas fundamental for the interpretation of the other phenomena of mind that are to follow.

CHAPTER VI

THE NERVOUS SYSTEM, ITS FUNCTION AND EDUCATION

Every living organism, with all that it may now contain, began its existence as an individual in the form of a single minute cell whose complexity and mysteries furnish one of the most attractive fields of study in the universe. The solution of each problem seems to give birth to many larger ones. This original cell is only a small fraction of a millimeter in diameter. On beginning to grow it soon divides into 2 cells, these into 4, these into 16, these into 256, then these into 65,536, and so on until our whole body is completely formed. Finally, there are by rough calculation about 26,500,000,000,000 cells in our body. Of these only about 4,000,000,000,000 are what we call fixed cells; the others are in the blood. However, to imagine that what we call the body is entirely composed of these cells is quite erroneous. Besides much purely mineral and waste material, from 55 to 80 per cent of the entire body is water, varying and decreasing with age. Yet this almost incomprehensible number of cells forms a great complex, coöperative whole. The problems and mysteries of growth in general are never ending. We must be content to present here only the necessary facts about the growth of the nervous system, to show the dependence of mind upon it, and to become familiar with terms constantly occurring in psychological works.

Divisions of the Nervous System. The entire nervous system consists of two divisions — *peripheral* and *central*. The *peripheral* includes all the nervous elements outside the *brain* and *spinal cord*. It consists of thirty-one pairs of spinal nerves, originating in the spinal cord and diffused to all parts of the body; and twelve pairs of *cranial nerves*, originating in the brain, but reaching the surface of the body directly and without passing down the cord. The latter are such as the nerves of taste, smell, hearing, sight, the oculomotor (producing certain movements of the eye), the facial, the trifacial, the vagus (which controls the heart). The peripheral system includes, then, the thirty-one pairs of spinal nerves; the twelve pairs of cranial nerves and all their branches, diffused to all parts of the body; the sensory cell bodies, such as the end organs of sight, hearing, and touch; and the ganglionic nerve cells outside the brain and spinal cord.

The central nervous system is naturally divided into the brain and spinal cord. The spinal cord, a cylindrical prolongation of the central nerve mass, is composed of nerve cells, collections or aggregates of cells (called ganglia), and nerve fibers. It occupies only about two thirds of the length of the spinal cavity or canal. It is about eighteen inches long in the adult. From birth to maturity it increases in size about seven and one-half times. Close examination shows that it is divided into several distinct tracts, each the highway of certain nerves running to and from the brain.

The most important divisions of the brain are: (1) the *cerebrum*, or large brain, with its two hemispheres; (2) the *cerebellum*, or small brain; (3) the *medulla oblongata*, or first enlargement of the cord.

An internal view of one half of the entire brain is shown in Fig. 7, which gives a good idea of these divisions and proportions. This cut also shows the sensory and motor areas, the area for sight, and several of the minor divisions and parts of the brain ; but its main object is to

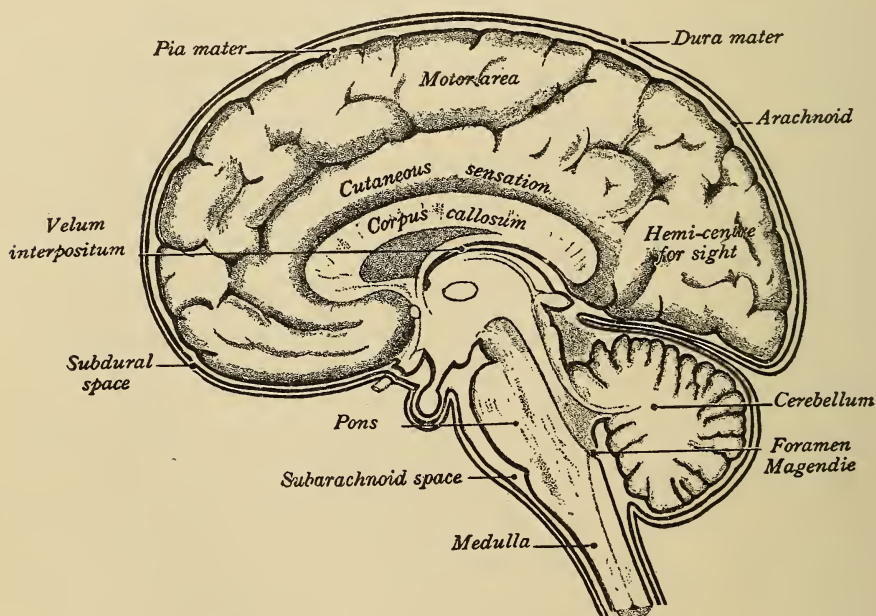


FIG. 7 (After Whitaker)

emphasize the proportions and relations of the three chief divisions — cerebrum, cerebellum, and medulla. You will notice the whitish appearance of the medulla, due to vast numbers of fibers passing to and from the brain. The functions of the medulla are mainly like those of the spinal cord.

Importance of the Cerebrum. The gray appearance of the large brain is due to a larger proportion of ganglion cells than fibers. The fibers are practically colorless and

are almost transparent; when they are massed together the whole is whitish. The cell body contains a dark pigment, but when fibers and cells are mingled, the mass has a reddish-gray appearance which varies according to the proportion of the fibers to cells.

Psychologically the *cerebrum* is our chief concern. Its degree of folds or convolutions was once supposed to measure the degree of intelligence. These convolutions are seen much better from the surface side. The cortex, or cortical surface, is a term frequently used in psychology. In general use it simply means the surface, but in psychology it usually refers to the thin outer layer of the *cerebrum*, averaging about one eighth of an inch in thickness and composed of three or four distinct layers of cells of different shapes and sizes. The cortical layers of both the large and small brain increase in thickness as the brain increases in size. There is some reason to believe that the cerebral cortex grows in thickness until the fortieth year. This is probably accomplished by the development of small nerve elements. These elements are found even in mature brains. In their smallest form they are known as *granules*, which later develop into neuroblasts, which may be expanded into well-marked cells. This is significant as a possibility of late intellectual growth.

Composition of the Nervous System. The unit of the nervous system is the nerve cell. A nerve cell differs from other cells by having prolongations, often to the extent of having a mass or volume of over five hundred times that of the cell body from which these branches originate. These prolongations are called fibers, and vary in length

from a small fraction of an inch to several feet. Once the fiber and the cell were considered separate, but many recent writers use the term "neuron" to include both. We shall use the term "cell" or "nerve cell" to include the entire unit and shall then speak of the two chief parts as *cell body or ganglion cell*, and *fiber*. The same cell body may have many fibers of varying sizes and lengths. Some of these fibers start from the cells in the cortex, and, extending

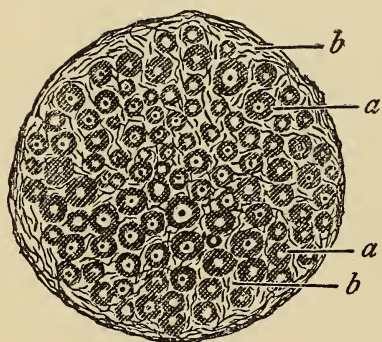


FIG. 8. A thin slice from the end of a cut nerve, magnified two hundred times (After Overton)

a, nerve thread; *b*, connective tissue binding the threads into a cord

the full length of the cord, pass out to the extremities of the body. When well developed, the fiber usually has a sheath around it, which causes an aggregate of them, such as found in the medulla, to present a white appearance. Nerves, such as the thirty-one pairs of spinal nerves and the twelve cranial nerves, often contain thousands of fibers, each inclosed in its own

covering; then within the main covering we find various bundles of fibers all, in turn, inclosed in another sheath. They are like a great number of wires starting together from a large central office and then branching off at the proper places. Fig. 8 represents the cut end of one of these small bundles.

In the optic nerve is found the enormous number of more than a million fibers. Nerve fibers vary from about one twelve-hundredth to one fifteen-thousandth of an inch

in diameter. The number of sensory fibers is greatly in excess of the number of motor fibers. The number of motor fibers coming out from the spinal cord by way of the thirty-one sensory roots is placed at about five hundred thousand. These are vastly multiplied by further divisions, in their service to all parts of the body. When the cranial nerves are considered, the proportion of sensory to motor nerves is found to be the enormous relation of thirty to one. The sensory area in the cortex is correspondingly large. Connective nerve fibers in the central nervous system are also very important; their function is to bind the parts together.

The cell body is a mass of protoplasm containing a nucleus. A cell is not simply a hollow space surrounded by solid walls. Under an education that placed words and definitions above content, I once so conceived it.

Examination of Figs. 9, 10, 11, 12, and 13 will give you more information about cells and their fibers than any dozen definitions. Fig. 9 shows a vast number of fibers passing into the brain from the cord and the cranial nerves, such as the optic and auditory nerves, and their separation and termination in the cortex. In Fig. 10 we have a large nerve cell, presenting a good idea of the cell body and its fibers. *N* indicates the nucleus; *P* indicates protoplasm. Fig. 11 gives a good conception of the extensive multiplication of fibers that may proceed from a single cell body. Fig. 12 presents some idea of the different shapes and sizes of nerve cells as found in the different layers of the human cortex. In Fig. 13 the structure of the cerebellum is suggested. This also shows different layers of nerve cells. The enormous complexity of the nervous system cannot be presented in a work of this kind,

but the idea that it is almost incomprehensibly complex must be in the background of all psychological thinking.

Nerve cells are of various shapes, and vary in size from one three-hundredth to one five-thousandth of an inch in diameter. The entire nervous system probably contains

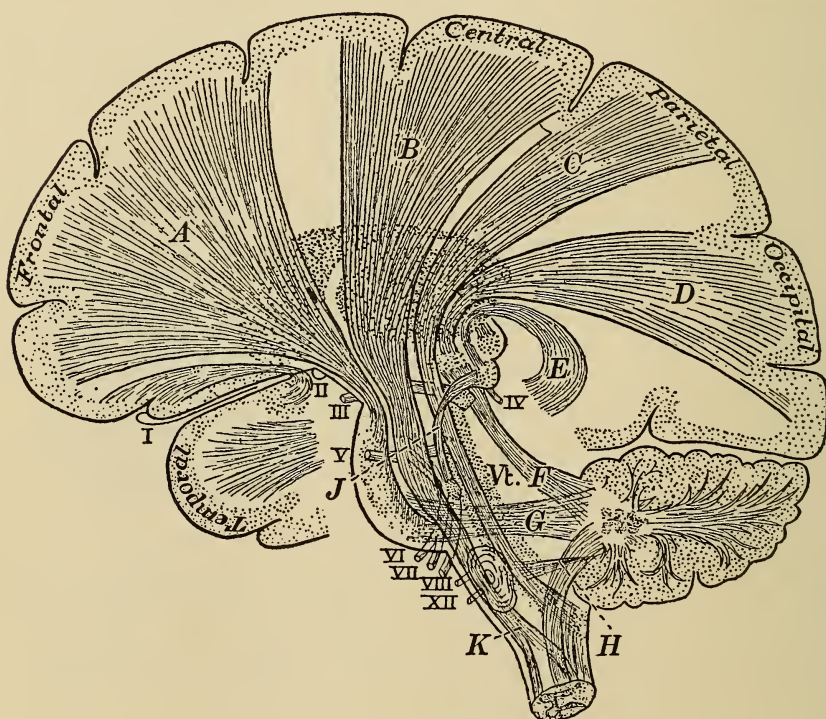


FIG. 9 (After Donaldson)

four billion nerve cells. Donaldson estimates that the central nervous system contains three billion. By a little arithmetic you will soon see that one hundred years contain only about three billion seconds, so a long life would not be sufficient to count the number of nerve cells in your nervous system. Cells are capable of six important functions — nutrition, reproduction, contractility, irritability, conductivity, and coördination or coöperation.

Growth of the Nervous System. The number of cells that the nervous system will contain are all present before birth, and no new nerve cells will be formed during the life-time of the individual. When nerve cells are destroyed *in toto* they are never replaced by multiplication of new ones,

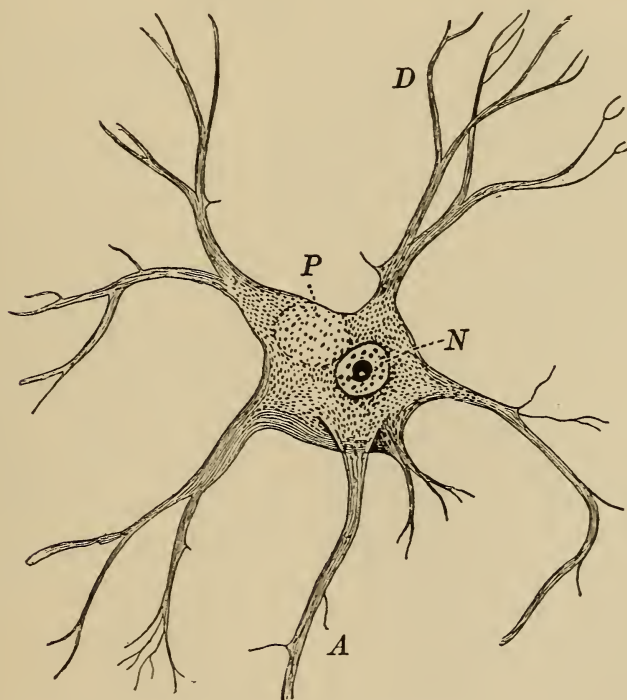


FIG. 10 (After Donaldson)

as in the case of the skin and many other parts of the body. The growth from birth on is by the *enlargement of cells and the prolongation of fibers*. Nerve fibers when cut may, after sufficient time has elapsed, reunite and function as before, but the destruction of the cell body leads to a gradual decay of all of its fibers. The brain increases in size nearly 30 per cent during the first year, and 10 per cent

during each of the second and third years. "During the fourth year alone it increases more than it will during all



FIG. 11 (After Van Gehuchten)

the rest of life, and it is nearly finished growing by the sixth year. After eight it grows but little." It now increases slowly until the fourteenth year, and some investigations indicate slight increase even to the age of thirty. In the average individual, from fifty-five on, the brain begins to lose in size and weight. It reaches its maximum size early, but we must distinguish this from *development* or differentiation for the purpose of action or functioning. For example, the pianist does not increase the *mass* of muscles in his fingers. He only differentiates, develops, and brings them

under control. The fundamental muscles function first; then the accessory or finer ones are coördinated. This order of development has great educational significance.

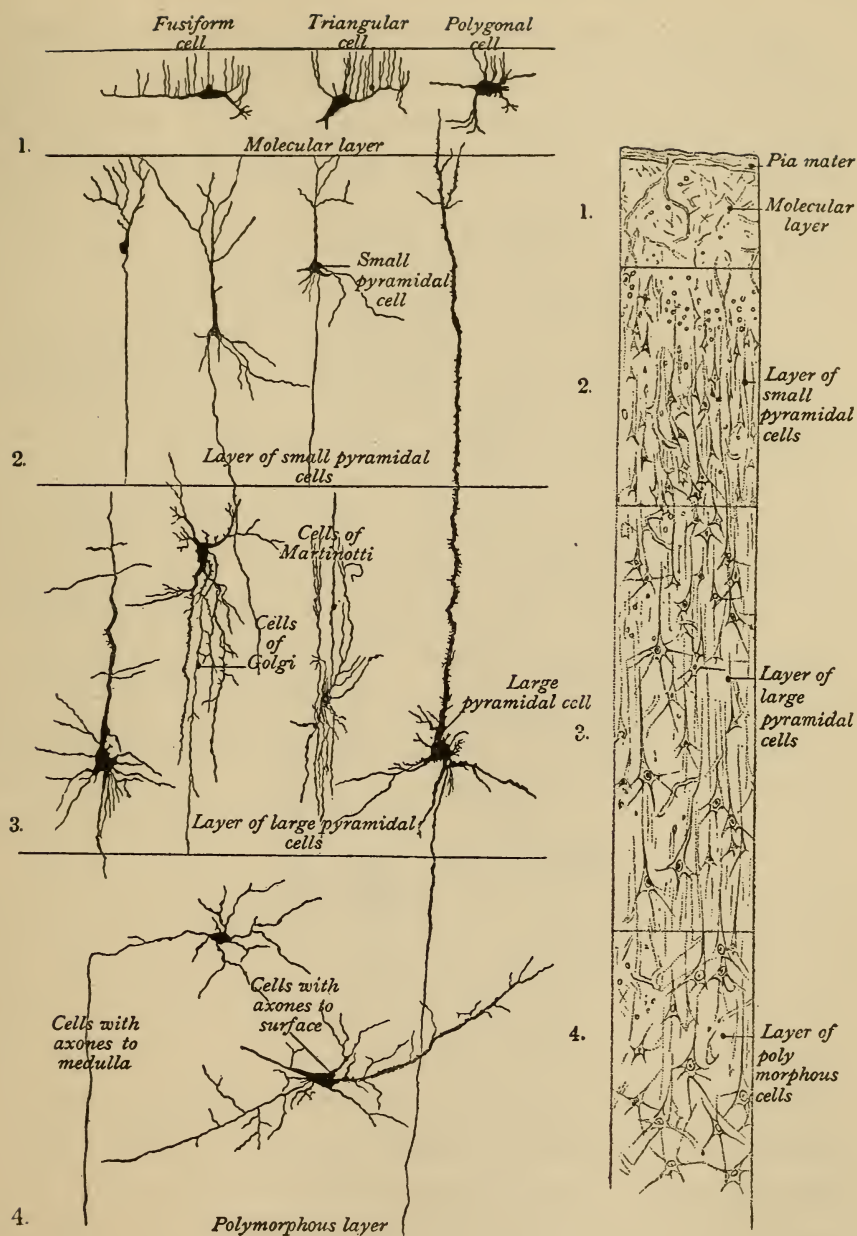


FIG. 12 (After Whitaker)

Functions of the Different Parts of the Nervous System.

Beginning with the peripheral nervous system, we note that its millions of fibers are of two kinds — *sensory and motor*, or *afferent and efferent*. The terms “sensory” and

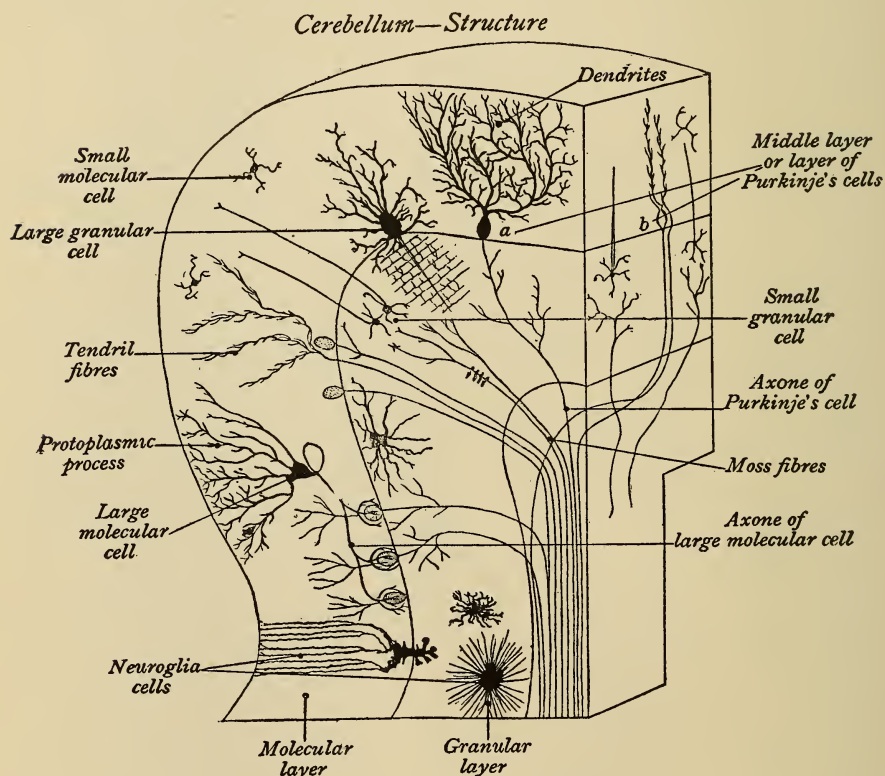


FIG. 13 (After Whitaker)

“afferent” are both applied to all nerves that transmit disturbances to ganglionic centers or to the central system. But “afferent” is, properly speaking, a wider term inasmuch as it includes all nerves that transmit a stimulus to the central system, whether such transmission affects consciousness or not. The terms “motor” and “efferent” are both applied to all nerves that transmit impulses from

the central system to the muscles. The two different processes, afferent and efferent, are not both accomplished by the same fiber. This has been thoroughly proved by careful experiments. A bundle of nerve fibers before entering the spinal cord divides and enters by two different roots, one composed of sensory and the other of motor nerves. Cutting the sensory root destroys feeling in the parts supplied by that bundle of fibers, while motion in the same parts remains undisturbed. Exactly the reverse is true when the motor root is cut. The hand may be burned and pain result, without any power to move the hand. The temporary destruction of the sensory function of sensory nerves while the motor function remains intact is now quite common as a result of the application of drugs.

Again, any motor center in the brain stimulated by a discharge of electricity produces movement in the part of the body controlled by that center. Also the removal of certain cortical areas in the brain produces disturbances in the dermal sensations.

All sensory impressions carried to the brain from the trunk and extremities terminate on the opposite side of the body from which they originate. Ingoing fibers all cross in the medulla; for example, the sensory center for the left arm is in the cortex of the right hemisphere. Generally speaking, the same is true of motor discharges originating in the brain. They are conveyed downwards from the brain, and most of them cross in the medulla, but some cross lower down in the cord.

The spinal cord, besides transmitting the nervous discharges to and from the brain, is a great storehouse of nerve batteries. These are centers of reflex action. In man

the spinal cord is largely under the control of the higher centers, but even here the number of reflexes is very great. It may also *inhibit* reflexes. In the lower animals these reflexes are more numerous, definite, complicated, and effective. Destroy the entire brain of a frog and its limbs assume a natural position and resume that position again when disturbed. If its body be irritated, its limbs make definite movements for the purpose of relief. It will lie flat on its abdomen, and, if kept in water, will remain sensitive to irritation for days.

The functions of the medulla are conduction and reflex action. The medulla is a solid network of fibers. Through it must be transmitted all nervous discharges passing to and fro between the brain and spinal cord. It also controls very important reflexes, especially respiration. It in some degree controls the sympathetic system. This in turn regulates the lungs, heart, blood vessels, and certain abdominal organs, over which we have practically no voluntary control. In the frog and similar animals, so long as the medulla remains intact, respiration and life may be maintained.

The functions of the cerebellum are not well defined. In itself it is entirely insensible to irritation. The gradual cutting away of the cerebellum produces a corresponding loss of power to coördinate the muscular movements, but does not destroy volition and sensation. The cerebellum is neither the seat of sensory nor of intellectual functioning, but of the power to combine actions and preserve *equilibrium*.

The functions of the cerebrum, or large brain, are many and varied. Examination of Fig. 14 will give some idea of its complication, but this barely suggests what must exist.

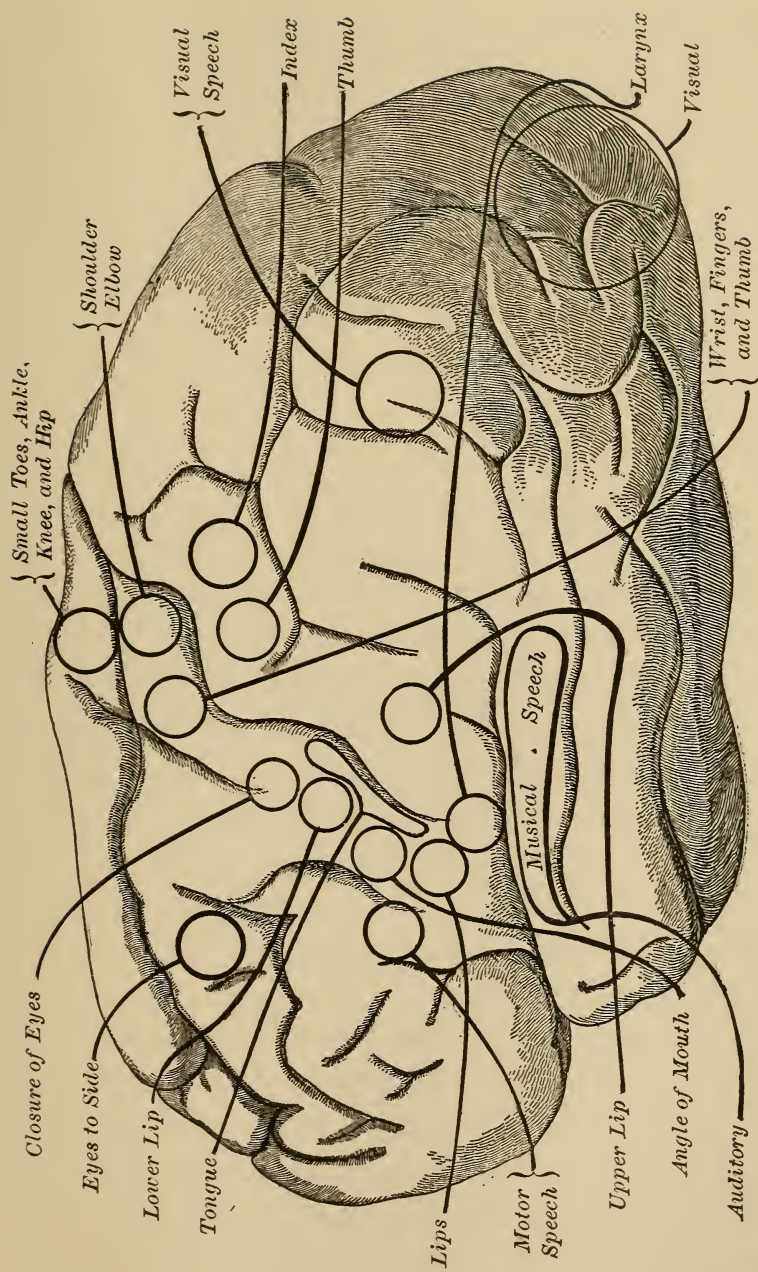


FIG. 14

Experimentation shows (1) that the large brain is the seat of the special senses — sight, hearing, touch, taste, smell, and muscular discrimination; (2) that it is the organ which receives, records, and reproduces for purposes of judgment the clear and vivid impressions; (3) that the cerebral cortex is the instrument of will so far as deliberation is concerned; (4) that the cerebral cortex is the source of the higher emotions and feelings; (5) that memory and imagination have their storehouse somewhere in the cerebrum.

The foregoing facts, chiefly established by experimentation on animals, find confirmation in human beings.

(1) Inherited and abnormal defects in the cerebrum are generally accompanied by corresponding intellectual deficiencies and disturbances of the higher instincts.

(2) Any severe injury to this organ instantly deprives man of his mental faculties.

(3) Through the whole course of development of the nervous system, the size of the hemispheres, in proportion to the other parts, seems to bear a relation to the increase in general intelligence.

(4) The fact that in certain diseased conditions individuals may partially or completely lose many highly specialized functions, with slight or no other disturbance, indicates more detailed *location of function* than we have yet been able to prove. The power to remember proper names may be lost without any other observable effect. I once saw a girl sixteen years old, who, by injury from a fall, was deprived of all power to recall proper names; but she could describe any person so completely that you could readily identify the person from her description.

Also any one may lose the power to write, to read, to speak, etc., with but slight additional disorders. Such individuals simply seem to *forget how*. Pain sensations may exist in parts of the body where there is entire loss of the touch and temperature sensations. In some cases temperature and touch sensations may remain where those of pain are destroyed.

The foregoing illustrates what is known as *localization of function*. Its profound importance to psychology will at once be evident. The sense organs and the spinal nerves transmit motion to certain parts of the brain. In Fig. 9 we have the suggestion of a great network of telegraphic fibers conveying messages to all the different parts of the brain. It is probable that the entire front portion of the cortex is devoted to the higher thought activities. Division of labor is the law of the organic, industrial, and intellectual worlds.

Education of the Nervous System. How to make the most of this life cycle during which the nervous system undergoes its growth, development, and decay is the supreme problem of education. Upon what does our potential intelligence depend, and how can we unlock it to best advantage? Attempted answers to the first question have been:

1. Brain mass, or mass in proportion to body weight, was supposed to determine the possible intelligence. Great difficulties lie in the way of accepting this. Comparative study of nervous systems, however, shows that man's brain is nearly three times as heavy as that of any other animal approaching him in size; but this does not hold as a basis of intelligence when human beings are compared

with each other. In absolute weight the male's brain is heavier than the female's, but when taken in proportion to body weight the female's brain is heavier than the male's.

2. Next, the proportion of gray matter to white matter was seized upon as the secret of intelligence. But gray matter simply indicates the cell body, and the white matter is its medullated fibers. This relation does not give a satisfactory explanation. Nerve cells without their developed fibers would be an inadequate equipment for intellectual activity.

3. Then, the number and depth of the convolutions were supposed to reveal the secret. But Donaldson and others have discredited this theory save as a possible factor in increasing the *cortical area*.

4. Finally, there is a tendency to consider more than one cause as a basis for differences in intelligence — *extent of cortical area, variations in inherited composition of the nervous system, variations in relations and adjustments of all parts of the organism*.

The very act of living is itself the beginning of the education of the nervous system. We have already considered the great power of habit in determining life, and discovered its basis in the nervous system. Every reaction to new conditions is educational. It is a mistake to think of education chiefly as formal. Formal education has two supreme problems so far as the nervous system is concerned: (1) to avoid permanent damage by precocity, by overeducation, or by undue strain; (2) to develop the different functions by the *proper stimulus at the proper time*.

The premature forcing of growth is everywhere damaging. The eyes of kittens may be artificially opened before the normal time, and apparently with advantage to the animals, but later blindness and disorder follow. What *can* be done with the child may not be what *should* be done.

But immediately the second problem confronts us. The nervous system develops quite early, and unless we watch our opportunity our efforts may lose half their efficiency. What a painful sight to see people struggling to learn Latin at thirty or thirty-five years of age! Both the stimulus and the time are out of joint. Since we cannot observe these developing processes in the brain, our only *possible guide is the intensity and permanence of interest and curiosity as the indices of these internal changes*. To ignore these, the only signs of the order of developing brain power, is a sin against the growing, unfolding child, which no repentance will ever alter. Once you have passed the nascent stage in the growth of any power or forced another to take its place, nothing can atone for the loss. Forced to the conclusion that the developing powers of the soul are, one and all, dependent upon the development and functioning of the brain, what do those who oppose the *doctrine of interest* propose to offer us as a guide to these hidden inner processes? Do they still hope to switch these brain processes to suit their own imposed ends? Or have they developed clairvoyant powers?

Fatigue is a danger signal. Long fatigue changes the size and color of the cells; it also produces a poisonous product in the nervous system. Rest and sleep are the normal processes of restoration. In mild fatigue change of

work will often bring the proper relief. Generally there is a tendency to run down about the middle of the afternoon, with a return of strength later in the day; this is due in part to the great fundamental rhythms of life. After rest and sleep the cells are full-sized, and a much slighter stimulus produces a response. In starvation the nervous system maintains its weight at the expense of other parts of the body. While there is always danger in undue strain, yet we probably go through life with a vast amount of possible, unutilized power. In maturity examination proves the presence of many undeveloped cells.

The problem of fatigue is of great practical importance. Our scientific knowledge regarding the effects of adolescent fatigue, and regarding ability to resist it, is as yet very limited. Periods of rapid growth are supposed to be periods of greatest susceptibility to fatigue, but this is still uncertain. Fatigue is manifested in different forms. Some children are by nature slow plodders and incapable of intense application. Others work in moods of intense application or not at all. Studies in what is known as *second breath* are quite suggestive. Investigations indicate a loss of power to resist fatigue at about eight years of age, and the maximum endurance at about fifteen. *To learn to utilize all our possible resources in this short life cycle is the pressing problem of future science.*

How Knowledge of the Nervous System helps us to interpret Human Life. 1. It is evident that we came into the world with many preformed adjustments of the nervous system ready to respond in a definite way to certain outside conditions. In the chick the preformed mechanism

is so definite that a slight stimulus is sufficient to produce a definite response in the act of walking, pecking, etc. The same thing is true of all the activities of the newborn child. But milder degrees of this original, inherited adjustment are present in nearly all human activity. One writer even suggests that the nervous mechanism which underlies our concepts of *space* and *time* may exist more or less adjusted before birth, and may therefore need but a small amount of experience to become efficient. This is a compromise view of innate ideas. Be this as it may, it is evident that the intensity of the response and the vividness of sensation do not correspond to the amount of motion received by the sense organ. They rather correspond to the biological adjustments in the brain. Whatever view we may hold concerning a specific instinctive fear of reptiles, common observation compels us to admit that here the response is wholly out of proportion to the comparative amount of motion received by the nervous system, or to the actual danger. A previous adjustment in the nervous system is the only thing that will explain it. May we not also some day recognize that the preformed adjustment may be such in some people as to cause small stimuli to call forth monstrous crimes? In cases of kleptomania and many similar conditions we have no other possible explanation.

2. A knowledge of the functions of the nervous system explains many abnormalities and strange psychic manifestations. Once the insane were supposed to be possessed of demons; now we know the trouble lies in the functioning of the brain processes. Those afflicted with neurasthenia, melancholia, and similar nervous disorders, look for the

cause in conditions or in their treatment by others. This is due to the fact that the cause is hidden from them, deep in the organization and conditions of the nervous system.

3. As we have already seen, the nerve paths in the brain furnish the only possible explanation of the formation and persistency of *habit*. The coördination of brain processes explains the great ease with which the acrobatic performer, whether animal or man, does what seems incredible. The brain processes have taken the place of that intense conscious effort that the onlooker feels must be exerted. In like manner habit establishes relations in the nervous system that to some degree extend to the whole of human conduct. Even though blood and intelligence, muscle and will, be joined in an insoluble mystery, without some knowledge of the nervous system and its relation to mental activity we shall ever be wanting one of the keys to the solution of human conduct.

CHAPTER VII

SENSATION AND THE DEVELOPMENT OF THE SENSES

The special senses must furnish us with all knowledge of the external world. Even the instincts must rely upon the senses for guidance. The deepest instinct needs a stimulus and some sense organ for its manifestation.

The Stimulus and Nerve Action. The senses are always brought into action by some external or internal agencies which we call stimuli. A stimulus is anything that acts on our nervous system in such a manner and with such intensity as to produce either *reflex action* or a *change in consciousness*. In the simplest forms of sensation such consciousness may only make us aware of some disturbance without giving us any information about the external object, such as the child's earliest sensations of light, color, temperature, sound, taste, etc. It would seem simple and comprehensive to say, as some writers do, that a stimulus is anything that produces action in the nervous system. But no doubt there are countless thousands of nervous actions that are not discernible either in consciousness or by observation. Digestion; circulation of the blood; slight variations in the atmosphere and in temperature; vibrations of air below 16 and above 40,000 per second, the limits for hearing; vibrations of ether below 400,000,000,000

times per second and above 800,000,000,000 times per second, which are the limits for color — all these and many more subtle forces doubtless produce and modify nerve action. The discovery of the unconscious influence of many of these forces is one of the greatest revelations of modern psychology, and we shall return to their importance under another topic. Electrical changes, caused by an approaching storm, may be such as to produce an effect on some animals, and may be the cause of the peculiar sensations that many people experience just before a thunderstorm. For all practical purposes we had better think of a *stimulus as producing some observable sign of nervous disturbance or some conscious modification of our mental states.*

Sensation and Perception. A pure sensation is a rare thing and belongs to a stage of development so early that memory does not seem to retain any trace of it. Our sensations pass into perceptions so rapidly that we no longer have *simple states of consciousness*. We immediately *perceive* the disturbance as belonging to some one of the senses and refer it to some *perceived object*. Simple mental states unmodified by past experiences do not exist so far as we are concerned. The sight of an orange, the sound of a bell, and all other impressions that might be mentioned involve sensations, but these sensations immediately pass into the perceptions *orange, bell*, etc. So popular speech is not entirely wrong in refusing to separate these two terms.

Sugar may give us the sensations we designate as sweet, soft or hard, pleasant or unpleasant, white or brown, rough

or smooth — all these according as the attention dwells now on this, now on that, quality. But even these are never given in consciousness independent of past experience and of reference to some object. Yet sense perception such as the sight of sugar, owing to past experiences, habit, and association of ideas, involves these complex impressions. To grasp an orange in the hand is only a small part of the perception. Some notion of its taste, its color, its interior condition, its use, its peeling and seeds, or absence of seeds, are included in this great complexus called perception. To be consistent and conform to general usage we should call the act of grasping the orange *sense perception*, and this great complexus, *perception*.

The Special Senses and their Adaptation to Stimuli.

The special senses now recognized in psychology are touch, sight, hearing, smell, taste, muscular discrimination, with the probability of a temperature sense, and some indications of special pain nerves. Even these do not seem to be sufficient to account for all the facts and possible sensations presented to the mind. It has recently been discovered that the inner ear contains a sense organ that gives us sensations about positions of the head and indirectly of the whole body. The semicircular canal, once supposed to be an organ of hearing, is now proved to be also an organ of motion and position. Any rapid movement of the body in a circle, suddenly stopped, gives the impression of movement in the opposite direction. Strange sensations of opposite movements are felt on the sudden stopping of an elevator. These are due to a change in the fluid in the sacs of the internal canals.

Are not hunger, thirst, and nausea sensations? What are their sense organs? True, we think of them as bodily conditions, but by what physiological process is the mind made aware of them? There must be some special kind of sense organs for these.

This list does not yet explain all sensations. We have special sensations of bodily comfort, discomfort, satisfied feelings resulting from a good meal, etc. These we put under the general name of *organic sensations*.

By gradual adaptation and specialization these senses have limited their response to certain *conditions* and certain *stimuli*. The skin, as the organ of touch, responds to contact, heat, cold, pressure, pain, slight contact called tickling, and also gives the sensation of general shudder. The eye responds only to a limited range of vibrations of ether, such as above stated. The ear responds only to limited molecular motion or waves of air varying from 16 to 40,000 per second. The olfactory nerve responds to quite a variety of small particles of external substances; whether by chemical action or by some other means is yet one of the unsolved problems. The taste organs are excited only by certain chemical actions. The muscles respond to pull or strain. All sense organs are capable of being stimulated by electricity. Such is a rough, general classification of the stimuli affecting the sense organs.

We have already called attention to the fact that, through a process of biological selection and heredity, the individual senses are adjusted to respond more readily to some stimuli than to others. The kind of response is not measured by the intensity of motion received. The amœba responds to four kinds of stimuli, — electrical, chemical,

mechanical, and thermal, — but all parts respond equally well. With man and the higher animals some parts are much more sensitive to these stimuli. Experimentation shows that animals often respond readily and violently to certain slight sounds, while they absolutely ignore others of much greater intensity. The slight sound or the odor of the rattlesnake often produces a vivid and intensive response. Man also reacts to certain stimuli, even of a comparatively slight intensity, more readily than to others. Every one knows something of this kind of response in cases of danger or fear.

There can be no doubt that the senses have gradually evolved to their present wonderful perfection and specialization. All animals and some plants possess some degree of sensitiveness to external disturbances. Touch is the oldest of all the senses; all others appear to be modifications of it. Sight began with only pigment spots in the skin. Many lower forms are devoid of the sense of sight, but they respond rather readily to the stimulus of light. Some of the lower forms will respond not only to variations in intensity of light, but to different colors, even after the visual organs are cut out. In many, taste and smell are either entirely wanting or quite defective. Food is often absorbed through the surface of the body. Taste organs have not yet been found in insects. Smell seems to have developed before taste. Some animals have senses unknown in man, and some possess a few of the senses that are common to man, developed far beyond man's. Probably some birds have little or no power to detect odors. In a general way it appears that power of hearing and sight increases with intelligence. Again, life may go

on, as in the case of Helen Keller, with the loss of these higher senses. In such cases it is rather mystifying to note how touch seems to assume, in a measure, the functions of the other senses. In some way such individuals may get a complete education in a variety of things, including the appreciation of music.

Sensations arising from the Skin. The skin is supplied with millions of nerve endings. When these are disturbed by the proper stimuli and to a certain intensity, a nervous discharge is carried to the brain. As already stated, these discharges are classified by us as contact or *simple touch*, heat, cold, pressure, pain, tickling, and shudder. Hairs on the skin often serve as organs of touch, and are often more sensitive than the skin beneath. In some animals these tactile hairs acquire great length and firmness. Sea animals are often able to detect pressure and movements at a considerable distance. Probably in this manner whales are protected from shoals. Animals that burrow have delicate organs of touch in the feet and nose.

1. The sensitiveness of the skin has been minutely investigated along two different lines. The first has to do with the ability to discriminate two simultaneous contacts of the points of a compass as two separate touches. This ability varies considerably on different parts of the surface. The fineness of this sensibility varies from $\frac{1}{25}$ of an inch on the tip of the tongue to over $2\frac{1}{2}$ inches on the upper arm, thigh, and back.

The tip of the tongue, tips of the fingers, lips, and palms of the hands have a much greater sensitiveness of this

kind than other parts of the body. There are many conditions and applications of drugs that increase or diminish this ability.

2. *Sensitiveness to pressure* is another problem. What is the smallest pressure that will produce a sensation on different parts of the body? What is the smallest difference in such pressure that can be detected? These questions have been thoroughly investigated. The general results show that the forehead, temples, back of the hand, and forearm are *most sensitive to pressure*. These parts detect about .03 of a grain or .002 of a gram, while the nose, chin, and abdomen detect only about .6 to .7 of a grain. You will notice that the parts having the greatest sensitiveness to pressure are not the same as those having greatest discrimination.

3. *Weber's Law*. What part of any given stimulus producing a sensation must be subtracted or added so that we may realize that there has been a change? This is our second question in another form, and its answer is known as *Weber's Law*. It applies to all the senses. Its general principle is that, to increase or to diminish the intensity of any given sensation so as to be just able to note the difference, we must each time add or subtract a certain per cent of the present stimulus. This constant ratio of increase or decrease of stimulus to produce a *just observable* change in sensation varies for the different senses. For sight it is approximately one one-hundredth of the given intensity of the light; for muscular sensations, about one twentieth; for pressure, noise, and temperature, about one third of the given stimulus. This means that a light of fifty candle power must be increased one-half candle power

before we are aware of the change. A weight of twenty pounds must be increased one pound. A pressure of six pounds must be increased two pounds before we detect the change. This law does not hold with any great accuracy for sensations of a *low* or *high* intensity.

Fechner, building on this law, tried to find out what relation exists between our judgment of the *degree of increase* of the intensity of a sensation and the *actual increase* of the outside stimulus. If we declare, for example, that the temperature of water is $\frac{1}{5}$, $\frac{1}{3}$, $\frac{1}{2}$, or twice as hot as a previous given sensation, *what change has actually taken place in the temperature?* Similar tests have been made for all the senses. *The uncriticised, psychological judgment asserts that they are essentially the same.* But there is a great divergence, and experiments prove a tendency to a constant ratio, especially so long as we avoid the *high* and *low* intensities. Fechner's statement of this relation is *that the sensation varies in an arithmetical ratio, while the stimulus varies in a geometrical ratio.* A little knowledge of mathematics will show you how wide this divergence soon becomes. While we cannot mathematically measure our feelings of joy and sadness, yet it is probably the indefinite operation of this law that causes serious misjudgments in these lines. I may be happy over the possession of one thousand dollars and probably think that ten thousand dollars would make me ten times as happy. Or I may have endured a small calamity, and, comparing my depressed feeling with that of individuals whose stimulus is many times greater so far as outside influences are concerned, I am amazed to know how they can bear their condition. I find myself very cold at a temperature

of ten degrees below zero; I am told of people who endure sixty degrees below zero, and I shake my head in despair. In these and thousands of other cases I am trying to measure the future or foreign sensation by the *absolute increase of stimulus*.

4. *Other sensations of the skin.* The popular notion of touch also includes pain, temperature, pressure, and even the muscular sense. These have lately been differentiated. Specialists claim that pain may be destroyed in any given part of the body by disease or application of drugs, while susceptibility to sensations of heat and cold remain. Sensations of pain may be destroyed while those of touch remain intact. At least two normal examples showing the independence of touch and pain may be mentioned. Contact with the cornea of the eye gives no touch sensation, but pain. Piercing odors produce pain without touch.

The areas of greatest sensitiveness to touch are not identical with those of greatest sensitiveness to temperature. We may test the skin and find that the points of greatest sensitiveness to cold are not those of greatest sensitiveness to warmth. The cold spots, at least, are easily discernible simply by passing a steel pen lightly over the skin.

5. *The muscular sense* is, in general, confused with that of pressure. But this confusion is probably due to the fact that there exists a group of sensations from joints, tendons, muscles, and sensory nerves, together with motor sensations. It is now some forty years since sensory nerve cells were discovered in the muscles and in the tendons. The surface of the joints is furnished with nerve cells. Electrical stimulation of the joints modifies our estimation

of weight and movement. Thus we have muscular, tendinous, and articular sensations joined in our judgment of weight and movement. The general term "kinesthetic" is applied to this group of sensations.

For example, a three-pound weight resting on the hand placed on a table gives quite a different sensation than if it be held by a handle or string and suspended in the air. It will also seem heavier if lifted slowly than if lifted rapidly. It will also seem heavier if, while lifting it with one hand, the other hand be clenched tightly. A combination of pressure and this group of sensations known as the kinesthetic gives us the best knowledge of weight. Again, touch is not the only factor in telling us the position of our limbs. *The muscular sense plays an important part.*

6. *The education of the sense of touch* is possible to an extent scarcely credible. The blind may be educated to read with ease, rapidity, and accuracy, either through the fingers, or in case the hands are wanting, through the lips or toes. The blind learn to distinguish color, and develop a marvelous sense of direction and of the nearness of objects. Helen Keller received an all-round college education through the sense of touch. But the education of touch, while most manifest in the blind, is not limited to them. Many men develop the ability to shave without a mirror and with a common razor, even on a moving train. There once lived in Denver a man without arms, who could shave without a mirror and with an unprotected razor, by taking the razor between his toes. Instrumental musicians have a highly developed sense of touch and muscular movement in the hands and arms.

Sensations of Taste and Smell. The statement that pure water is tasteless makes us wonder if we have ever tasted pure water. The trouble lies in the fact that what we call taste is really a combination of taste, smell, sight, touch, pressure, and temperature sensations. Pure water gives us the sensations of touch and temperature. There are only four distinct taste sensations ; namely, salt, sweet, sour, bitter. Some writers add alkaline and metallic. These sensations are probably caused by some kind of chemical action. But the possible mixtures and different degrees of intensity, combined with the great number of touch, smell, pressure, and temperature sensations, seem to give us a great variety of taste sensations, such as those from the different kinds of vegetables, meats, liquids, and the various possible combinations. The loss of smell has a marked effect on taste. Note the difference in the ordinary taste of an onion and the sensation if tasted while you hold the nose and cease to breathe. Through suggestion sight also has an influence on taste. The attractive appearance of candies, foods, etc. modifies our notion of their taste. The sense of taste is well-developed at birth, but is often quite defective in feeble-minded children.

Sensations of Smell are exceedingly Numerous. Just how they are produced we cannot say. Inconceivably small particles probably exist in the air. Air containing odors may be passed through a tube well packed with cotton wool, which retains all particles larger than $\frac{1}{100000}$ of an inch, and still the odor will remain. A grain of musk will fill the air of a room with odor for years and still not lose weight that can be detected. It is said that $\frac{3}{100000000}$ of

a grain of musk and $\frac{15}{460000000000}$ grain of mercaptan will each produce a distinct sensation of smell.

Great differences exist in regard to disagreeable odors. What is intolerable to some people is even pleasant to others. Certain animals spend their life amid odors that would be very painful to us. The cause of this exceedingly wide variance in regard to agreeable and disagreeable odors is unknown.

The possible development of the sense of taste and of smell is far greater than we would suppose. The highest development of taste is found among the wine tasters. Here the power is developed to a striking degree of accuracy and fineness.

Many animals far surpass man in the power of smell. The range is widened in man, but the power is diminished. The dog tracks the wild animal many hours after its passing by, and scents his master's trail on the pavement amidst thousands of others. It is the test of self-preservation that tells how far any sense may be developed. The Indians of Peru can scent a stranger while he is yet afar off, and tell if he be an Indian or a negro. The Arabs of Sahara smell fire at a distance of thirty miles or more. Tobacco buyers cultivate a keen sense of smell. The blind exhibit marvelous power in this line. A girl in Massachusetts was able to recognize persons she had met by the smell of their gloves. This girl by the same power was said to be able even to sort the clothes as they came from the laundry. Helen Keller detects an approaching storm, tells the time of day, knows the nature of the house she enters, recognizes individuals, all by the sense of smell.

Sensations of Hearing. Hearing was once the primary means of communicating knowledge from one person to another, of learning all languages, and of communicating thoughts. The two ears do not give us two simultaneous sensations, but contrast of the difference in intensity is the chief means in helping us to locate the direction of sound, which is never very accurate. By means of the intensity of sound and of various apperceptive ideas we judge of distance. Just now I heard a clock striking in a distant room; but, had I judged it to be a bell, the faint stroke would have caused me to locate it far away.

The ear is an exceedingly complicated organ, but we shall not concern ourselves with the anatomy of it. The external conditions for producing sound are simple and well known. Longitudinal periodic vibrations of the molecules of air are the sole conditions. If these vibrations are irregular, the result is what we call *noise*. If they are regular, we have tones or *music*. The range of vibrations that may be heard is usually between 16 per second and 48,000 per second. Some writers even give 50,000. Some ears are better developed than others, but the great majority of musical experiences are between 64 and 5000 per second.

Over 500 simple noises may be detected and about 11,000 different tones. This number may be greatly varied according to our conception of simple and compound tones. A common noise usually contains several simple noises and many elements of tone. Tones are also accompanied by some noise. The detection of these elements is in either case dependent largely upon training and the psychological attitude. The poet often hears music in the

running brook, in the wind whistling through the trees, and in the roaring ocean, where others hear only distressing noises.

Sound has four distinct characteristics :

1. *Intensity*, or loudness, which depends upon the amplitude of vibration. The prongs of a tuning fork pressed together gently give a low sound ; the same fork pressed harder changes the amplitude of vibration and produces a louder sound.

2. The *pitch*, which is determined by the *number of vibrations* per second. When the pitch is very high the effect is unpleasant or even painful.

3. The *quality*, or timbre, which is due to the source from which the vibrations come. For example, the same pitch from a violin, a drum, a flute, a piano, a horn, the human voice, each has a *quality* which enables us to distinguish it from the others. Of course in some cases a certain amount of training is necessary. Some writers designate pitch as the quality of a tone sensation. It is the shrillness or mellowness that constitutes the quality. Pitch may affect these qualities by varying the overtones. By slight variation in degrees of intensity we may pass from one color to another almost by imperceptible changes. In like manner we may pass from one pitch to another if only the instruments are properly arranged. Aside from the variation of the overtones pitch is variation in intensity.

4. Finally, we have already seen that the *relation* the vibrations bear to each other classifies the sound as *noise* or *music*. The psychological and educational value of hearing as compared with sight is usually underestimated.

Sensations of Sight. The eye is one of the most delicate and wonderful organs of the body. Some of the lower animals having no eyes, have spots that are sensitive to light. Sensations of sight are supposed to be produced by vibrations of the ether.¹ The range of such vibrations that may produce a sensation is between 400,000,000,000 per second and 912,000,000,000 per second. The qualities of visual

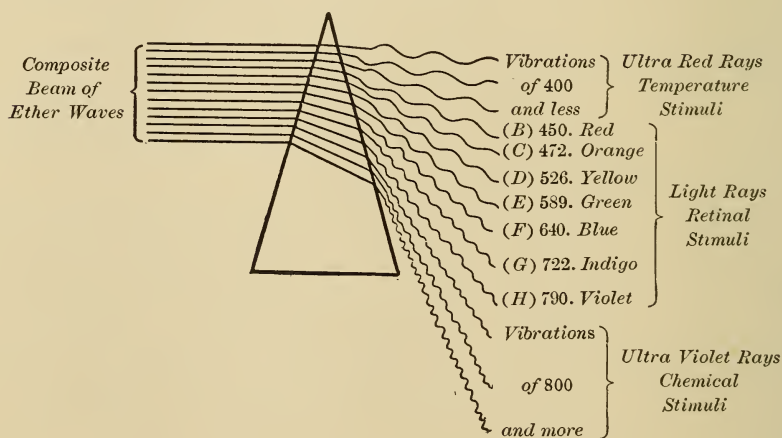


FIG. 15 (After Witmer)

sensation are very numerous. The colors of the spectrum and the number of billion vibrations per second necessary to produce them you will see in Fig. 15. In order they are red, orange, yellow, green, blue, indigo, and violet.

1. There are many other color sensations for which we have names, but there are also thousands of sensations for which we do not have any names. It is said that great artists have distinguished 30,000 different shades of color. More than 700 shades can be distinguished in passing from intense white to intense black. A well-known German

¹ Some recent investigations seem destined to change all our views about ether. See Bragg, Campbell, Einstein, in index.

writer suggests that there are perhaps a million color sensations. The dogma that "if you know a thing you can tell it" is quite absurd when put to the psychological test. Natives of Central Africa are practically limited to two words for color — red and black, but it is hardly conceivable that this is the limitation of their possible color sensations. I once witnessed a magnificent thunderstorm and cloud effect, high on the mountains, in which I was conscious of a great number of distinct sensations of shades, colors, and combinations, most of which I was powerless to express in any way.

When we are told in *physics* that black and white are not colors, because the one is the absence of all colors and the other the presence of all colors, we must not consider this a true psychological statement. The question with us is not one of *composition*, but whether the *sensation has a quality of its own which we call black or white*. For psychology they are colors as much as *red* and *green*.

2. *Complementary colors*. Colors may be combined in almost endless varieties. Certain colors when combined produce white or grayish-white. These are called *complementary colors*. The chief combinations are *red and blue-green, yellow and indigo-blue, green and purple, blue and orange, violet and yellow-green*. Such effect cannot be secured by mixing these colors in paints, but by rapid motion on the color mixer. Complementary colors placed side by side in a stationary position have the effect of intensifying each other.

3. *Color-blindness* has considerable psychological and educational value. It also presents some interesting problems in heredity. Our color sense has been developed

gradually, and is susceptible to extensive education. But lack of education in discriminating and classifying tints, degrees of saturation, and intensities of color must not be confused with *color-blindness*, the fundamental form of which is a *difficulty to distinguish red from green, and is called red-green blindness*. *Blue-yellow blindness and blue-violet blindness are less common forms*. Color-blind people do not always confuse these colors, but they always fail to distinguish *red* and *green* more frequently than the average individual. The brightness of the colors plays an important part with some color-blind individuals. A great variety of individual variations has been found.

Color-blindness has been proved to exist among some animals. About one in twenty men and probably not more than one in a thousand women are in some degree color-blind. It is transmitted by heredity, but in a very interesting way. Neither the disorder nor the potentiality to transmit it to others is inherited by a son from a father having the disorder; but the daughter inherits not the actual disorder but the potentiality or possibility of transmitting it to any male children in actuality and to female children in potentiality. A color-blind father who has sons but no daughters thereby cuts short this hereditary disorder, for he does not himself transmit the potentiality to his sons, but only to his daughters. The daughters of the color-blind father are not color-blind, but they inherit the potentiality to transmit it to their sons, should they have any. There are all degrees of color-blindness, even to absolute color-blindness in a few cases. The cause is unknown; it is incurable.

A most remarkable case of heredity and sight-variation is what is known as "night-blindness." One remarkable example of this disorder has been traced through nine generations. This defect renders the patient entirely blind in dull light. Otherwise he is perfectly normal. Night-blindness is just the opposite of *color-blindness* in one point — only the individuals actually having the disorder can transmit it.

4. *The world of vision* includes the rather wide range of knowledge which we seem to take in through the eye. It comprises (1) perception of individual objects; (2) the color of objects; (3) the shape and size of objects; (4) perceptions of solidity; (5) estimates of distance; (6) luminosity or intensity of color tone; (7) motion of objects in space; (8) smoothness and roughness.

In the development of these concepts *apperception* is an important factor. This is well established by surgical operations which have given sight to several individuals born blind. If we ever knew, we have long since forgotten how we acquired the world of vision and all its perceptions. Through the unconscious process of apperception we may now use many transferred perceptions that never originated under sight. One of the latest and most interesting of these cases is that reported by Dr. Ayers concerning a man who first used his sight at forty. He had developed marvelous skill with his other senses. Now he must acquire this new world of vision and all its perceptions by conscious comparison. Distance, size of objects, shape and form, motion, especially the number of objects before him, all are great puzzles to him. Objects have only extension and do not appear differentiated. He was shown

a ball and a square box. He could not tell the shape until he placed his hands on them. A stick twelve inches long and one inch thick he called four inches and the size of his finger. "It took four or five trials to learn to count one, then two, and finally five." A very exceptional thing is recorded of him — *that in the color test he named red, yellow, green, and blue correctly without touch*. The details of this case are exceedingly valuable for psychology.

Now we can return to the field of vision with new light on the subject. *The sensation of oneness* arises mainly from the habitual use of certain areas of the retinae. Touch plays a large part in the formation of most visual perceptions. By *apperception* these perceptions are gradually and unconsciously transferred to sight. The comparison of even minute muscular efforts in the eye is another source. The size of objects primarily depends upon the size of the retinal image, but this in turn depends upon the distance. Judgment of distance, in a measure, depends upon the degree of muscular effort to converge — the nearer the object the greater is the effort. Our estimate of distance also depends upon dimness or definiteness of outline. Objects seen in a fog appear immensely large. Intervening objects increase our estimate of distance and hence of size. The full moon at the horizon appears larger than at the zenith because intervening objects increase our notion of distance. The inexperienced have little knowledge of distance at sea. Should the distance of any object, such as a bird in air or a ship, be misrepresented to us by one who we have reason to believe knows, we are sure to misjudge its size accordingly. Movement of an object in space

is estimated from the movement of the image on the retina and from the movement of the eyes in following it. This last factor causes near objects to appear to move much more rapidly than distant ones.

These examples and hundreds that might be given *all show how the mind constantly coöperates with sight, unconsciously using the great storehouse of all its past experience, so that in the last analysis it is impossible to say what belongs to mere sensation and what to the influence of the mind in the use of apperceptive ideas.*

Reaction Time. The entire time that elapses from the moment a stimulus strikes the nerve ending until there is some response is called *reaction time*. It has been the subject of much experimentation in connection with sensation. This time is naturally divided into four parts. Suppose the right toe is touched by a current of electricity and we are requested to move it as soon as we get the shock. (1) There is time occupied in conveying this nervous discharge to the brain. This can be measured, for it moves at the average rate of about one hundred twenty feet per second. (2) There is time required for the mind to perceive or become conscious of this disturbance. (3) Some time is required to issue the proper command so as not to move the wrong foot; we may call this decision time. (4) Some time is necessary to carry back the impulse to the muscles of the toe.

It is quite evident that conditions will vary the reaction time:

1. It will vary with the intensity of the stimulus, all things else being equal.

2. It will vary with the different senses.
3. The degree of attention will vary the reaction time.
4. The physical condition of the individual will affect it.
5. Fatigue will lengthen it.
6. Stimulants will shorten it at first and lengthen it later.

7. Complication of stimuli will lengthen it. Suppose we are told to move the right foot for an electric shock, or the left for a flash of light. Evidently both number two and three of the reaction time will be lengthened. Such complications may go on almost indefinitely.

8. Conflicting ideas prolong the time. Taking it out of the field of laboratory experimentation, suppose you call me a liar. With no conflicting ideas the reaction may soon come; but if the police be standing by, it may be delayed.

9. In every line practice or habit shortens the reaction time.

10. General temperament or mental disposition of the individual will vary the reaction time wherever decision is necessary.

“How many things are herein mentioned as varying the reaction time?” Suppose this question be asked of several students, and suppose they know equally well and are equally attentive, the response will not be given with equal promptness in all cases. In some of the investigations made on school children, results strongly indicate that rapidity and accuracy of physical movement are accompanied by a corresponding rapidity and accuracy of mental response. On this mental and physical relation Locke defended the dance.

Subjective Sensations. By this term we mean actual sensations that have no external stimulus corresponding thereto. Taste sensations may be produced by electrical stimulus and by mechanical pressure on parts of the taste organ. It is also difficult to separate the external from the internal causes of sensation. Certain smell sensations are excited by electrical stimulation; but even aside from this, purely subjective sensations of smell are quite frequent. This is common among nervous people. They frequently declare the presence of various odors that no one else can detect. This may happen to any one occasionally. Suggestion and autosuggestion, as we shall see later, are powerful factors in producing these sensations. The suggestion at the table that pure meat is tainted may produce the subjective sensation in all present. Du Bois gives the case of a man who, after a certain fall, always smelled bad odors. Dr. Frederic Burk, who had abandoned the habit of smoking, told me that the taste and smell of tobacco smoke were very distinct whenever he had a cold.

Ritter found that electric currents excite sounds. Ringing and buzzing in the ears are common sensations of irritable and nervously exhausted individuals. Besides these we have the subjective sensations of sounds and noises, due to illusions and hallucinations. These, together with the illusions of sight, will be presented under the section on illusions and hallucinations.

Quality and Intensity of Sensations and of Sense Perceptions. Properly speaking, no sensation can have quality save as it partakes of perception. We have already given some attention to intensity in considering Weber's Law.

1. The *quality* is that characteristic that causes us to differentiate a sensation from others and give it a name, designating such differences as red, blue, green, sunset, sour, rough, smooth, sound of a bell, violin, etc. The following are factors in determining quality.

a. The largest differentiation is due to the different senses. In a normal condition we do not confuse sight and sound, taste and smell, touch and temperature.

b. Changing the point of application of the stimulus changes the quality. This in particular covers the many qualities of touch as applied to our own bodies. If you press gently on my ankle, and equally on any other part of the body, something about the sensations enables me to properly locate the two. As may be seen from facts stated on page 139, the body is very sensitive to the quality of touch. The sense of localization is limited in the newborn child but gradually becomes more developed. Finally it becomes so habitual that in those who have lost a leg or an arm a stimulus of cold to the old nerve ends appears to come from the hand or foot. The habit of localization continues.

c. Different kinds of stimuli applied to the same sense organ will produce a difference in quality. Between my forefinger and thumb I may pass an indefinite number of objects, each giving me a different quality. Here past perception, transferred perception, apperception, and even the reasoning process become helpful allies. As I now look at my bookcase one of the qualities of that visual sensation is smoothness. But this was originally acquired by the sense of touch. Hence it is a *transferred perception*. This process is quite common. I tap a dish and I know by the

quality of the sound that it is a *broken dish*. We have already seen how extensively taste borrows from smell, temperature, and touch.

d. Fatigue produced by prolonged application of the stimulus may change the quality. A five-pound pressure on the tip of the finger, if much prolonged, will change the quality of sensation. In five minutes an outstretched arm will give more than one quality of sensation. Color sensations are greatly affected by continuous stimulation.

e. We have already seen that sensations have an emotional quality of pleasure or pain.

f. If the stimulus be constant, or periodic and continually changing, the quality of sensation is modified. This is especially marked in the periodic stimulation by colors.

g. The relation of one stimulus to another may modify the quality. All sensations differ because of their relation to others. *Color contrast* gives us some good examples. Successive tasting of different substances produces great variation and inaccuracy. If the hand be held in cold water a few minutes, and then placed in water of ordinary temperature, it feels warm.

h. Occasionally a stimulus to one sense will produce distinct sensations in some other sense. With some people high notes give distinct sensations of certain colors. Intense colors sometimes produce a sensation of temperature or of faint sounds. The names of the numerals produce the sensation of a number form. *Number forms* exist in about one out of every fifteen individuals. They are *mental numeral frames*, which may be of almost any shape and size. Frequently the sound of the numbers 4, 5, 6, etc. produce regularly the visual image of some object, as square

box, fat duck, etc. A few individuals have certain color sensations accompanying the letters of the alphabet. Professor Jastrow has printed a page colored as it appeared to one man. These variations occur in otherwise perfectly normal people.

2. *The intensity of a sensation includes all variations which do not produce a feeling for a necessity to change the name.* An object may be smooth and less smooth, but finally there is at least a noticeable necessity for some other name. The color red may be weakened in its intensity until there is felt a necessity for some other name to designate it. *That moment the quality changes whether we have any name for it or not. This means a change,—a transition in consciousness.*

The intensity is modified by (1) increase or decrease in stimulus; (2) continuation of stimulus to a certain point; (3) extent of surface stimulated; (4) physical and mental condition of individual; (5) suggestion and attention; (6) contrast. A certain intensity of stimulus is necessary to arouse any of the sense organs to action. This is called the threshold of sensation. Then under Weber's Law we noted that a certain per cent of the present stimulus must be added or subtracted before we realize in consciousness that the intensity has changed. Nervous or physically or mentally fatigued persons exaggerate the intensity of a stimulus as compared with normal individuals. Suggestion that it is twenty degrees below zero undoubtedly modifies the intensity of the sensation in some degree for most people. Attention to toothache, headache, a boil, etc. undoubtedly modifies the intensity of pain. The contrast of a hot day with a cold one, of a sad state of mind with a happy one, modifies the intensity.

It is in color that quantity and quality of sensation are most difficult to distinguish, and this probably is due in part to the poverty of our language. Some writers add *duration*, *extension*, and *clearness* as distinct characteristics of sensation.

Practical Significance of these Facts. We no longer believe that knowledge gained through the senses is "of the earth earthy," and that there is some higher source which invalidates this knowledge. If it is knowledge of a low order, then let us be humble, for this is the only source of knowledge we have. Everything depends upon the proper physical condition, education, and constant use of the senses. Such knowledge is the only material for the use of imagination, memory, and reason. There is no other road to intellectual salvation and safety. All education that is not founded on what the senses furnish is vain show and empty words.

What practical suggestions and guidance for the explanation of human conduct can we draw from the foregoing facts about the senses, sensation, and sense perception?

1. We may expect all the higher powers of man to vary and be defective in proportion as these primary sources vary or are defective. Give all the credit possible to logic, but it must be admitted that defective *thought-power* goes back of formal logic. Fraser emphasized the fact that thought may be carried on in terms of several sense images, and this often leads to confusion and apparent contradictions among certain philosophical writers. The employment of visual images, for example, may bring precision, but at the cost of limitations. One finds a good

example of this in the confusion produced by Spencer's test of truth as being *the conceivable*. But there is a multitude of simpler things that cause variation in the mental world.

In the first place, the physiological condition of the senses is rarely ever the same, and in many cases diverges to an extent that makes a like content impossible. The extreme forms of such variations produce illusions of a marked character. Then, we have seen that many conditions vary the quality and intensity of sense perceptions, and these conditions will seldom be the same for any two individuals. Again, great differences exist even in the normal power of the senses. Finally, the opportunity or lack of opportunity for proper exercise of the senses, and the directing power of education, create different mental worlds for us. Is it at all remarkable that there are so many different interpretations and reasoned conclusions concerning this world that surrounds each of us? What is called scientific observation and experimentation is the only possible compass to guide us in this foggy sea, and that can never be final.

2. The foregoing facts should teach us the necessity for the proper care of the sense organs. A good physiology should be consulted. Some defects are readily removed by the skillful surgeon; a vast number of minor defects may be prevented by proper hygienic care.

3. Extensive and early cultivation of the senses is absolutely imperative. This fills the mind's storehouse for future use. The great and the small, all are alike limited by it. All learning is in some way a response to the conditions in which we live. The value of proper sensory and motor

activity cannot be overestimated. We early move out of simple sensation into sense perception; then to observation, which is sense perception guided by definite purpose; finally we have experimentation requiring well-trained perceptive powers.

There are some important factors in the education of sense perception, especially under the form of *observation*. Read emphasizes the influence of interest, habit, and expectation. We soon acquire certain habits of seeing, hearing, and all similar reactions, which in a large measure determine all future observation. These habits may be for or against us. They may become so strong as to deceive us into thinking we get sense perceptions when we do not. The constant appearance of Mr. Jones in a given place in church may become so habitual that his absence may not be noted, and afterwards we may be willing to argue that he was there. Through habit the expert observer marches on to his destiny with ease and accuracy.

Interest is a powerful element in determining both the vividness and the extent of our sense perceptions. Hence wide interest should be cultivated; if this is not done, habit will lead to a narrowing of our interests and cause other impressions to be ignored. We have already noted how animals come to ignore even strong stimuli that are not of interest in the way of self-protection. So we soon drift into responding to certain classes of stimuli and ignoring or only imperfectly responding to others. Keen are the observations of men where their personal interest or safety is involved.

Mental prepossession or expectation, while related to habit and interest, is not entirely caused by them. For

example, the many illusions and deceptions produced by the magician on the stage are largely dependent upon mental prepossession and inertia. This is accomplished mainly by suggestion, which plays a large part in all our sense perceptions whenever directed by another. "The Garden of the Gods" is a good example of perverted sense perception due to the ingenious suggestions of guides, concerning noses, faces, hands, heads of lions, etc. in the water-worn rocks. Some writers would have us believe that these three factors of interest, habit, and expectation are only different forms of attention, but we prefer to believe that they are the stuff out of which attention is made.

CHAPTER VIII

RELATION AND ASSOCIATION OF IDEAS

Few things create more general interest than the apparently strange relation of our daily flow of ideas. How is it that the word "whistle" may suggest to one mind a mouth whistle made from the bark of a piece of wood six inches long, to others, according to circumstances and experience, a locomotive, a street car, a steamboat, a foghorn, a story, New Year's night, a bare piece of metal through which steam escapes, a runaway horse, a railroad wreck, a song, a child in danger, Santa Claus, etc. The word "play" will suggest or be associated with an indefinite number of things in different minds. Some think of games; others of pieces of literature; others of things apparently unrelated. The name "Isaac" may recall only a printed word, a preacher, a merchant, a book some one gave you, a wrong done you, the "Merchant of Venice," or a father offering up his son as a sacrifice. What are the laws that govern these associations and relations of ideas?

The difficulty in studying association is that so much is intentionally and unintentionally suppressed and so modified by an oral record of it, that there is little agreement with the original. Since I have been at work on this book a thousand isolated, quite unimportant, long-past, and presumably forever-lost incidents, scenes, dreams, etc. have crossed the threshold of consciousness and forcibly

interrupted the direction of the stream of thought. When I am intent on some line of thought, whence come these strangers that seem to play ball in the background of consciousness? Why are they sometimes so monstrous that I am shocked at their presence? Observation of our own stream of thought will soon reveal the presence of what appears to be a subcurrent. Once while speaking to a small group concerning this subject I suddenly detected in the undercurrent of consciousness the thought, "What if I had been the fellow who killed Garfield?" On one occasion I asked a class of fifty to observe for one-half minute what passed in consciousness. Unexpectedly I then began to ask them to relate everything that had entered the field of consciousness. Some related an astonishingly long list and stopped, saying it had been *impossible to keep up with their thoughts* and that many had escaped them. One girl, after much hesitation, said, "To tell the truth, I spent most of the time trying to keep from thinking of things I would not wish to tell." I then asked how many had discovered in consciousness something they would not wish to tell. This condition was almost unanimous. Into the most serious moments of life creep strange gods. Why do these unbidden guests of all descriptions and characters continually come and go? Whether in deepest sadness or supremest joy, past regrets and future fears knock at the door.

Our consciousness is to our stream of thought like an observer on a winding river. He can see but little of whence he came or whither he goes. Knowest thou whither thy thoughts will bear thee the next moment? There are laws of mental life that determine the direction

of this stream of ideas, but their operations and causes precede the entrance of ideas into the stream of consciousness and we really have no conscious power over them. *Present thinking depends largely on past conditions. The order of our mental world depends more on the inner, hidden nature of the individual than upon outer conditions.* This inner nature has been determined chiefly by heredity, early experience, and training, and is the chief deciding influence.

The Rapidity of Thought has attracted popular attention from remote times. But our increased knowledge of this rapidity makes it still more wonderful. In one half minute I have just glanced over a new page of printed matter. A friend then questions me concerning the contents. In some way I have taken note of nearly all of its four hundred words. But these words are made up of characters that must be noted in some way. A record of all thoughts inaugurated in this brief time would fill several pages. Like a flash and unexpectedly the scenes of a whole day's journey in Alaska pass in consciousness. In a few minutes we can rehearse in our mind a speech of great length and be sure it is all there. Many experiments show that *simple association time* is a very small part of a second, but even this time would be greatly reduced could we take into account every association that *actually* passes in consciousness.

Having used James's classic term, *stream of thought*, which Morgan calls *wave of consciousness*, we must specify some of its characteristics. If we examine this stream of thought going on within us we will find:

1. *That it seems to be continuous.* On waking from sleep we seem to take up the process where we left off. Long

loss of consciousness due to anæsthetics or hypnotism, lapses of personality due to disease, or alternating personalities continuing many months are all followed, on return to normal condition, by a consciousness of *continuity*. The most noted case of careful scientific record is that of Dr. Hanna, who lost consciousness on being thrown from his buggy. Restoration of consciousness found him a child with no memory of his past existence. Some two months after this he awoke from a short sleep and immediately asked where he was, and inquired about his horse and buggy. He had made the union with his old personality. It is this consciousness of continuity that gives you *personality*.

2. *That it is ever changing.* This needs no demonstration for any one who has even the slightest ability to note what is going on within.

3. *That we are continually interested in some parts of this stream more than in others.* At any passing moment the stream of consciousness carries a multitude of diverse ideas. As I now write I am primarily interested in the flow of ideas connected with this topic, but, all the while, the sighing of the wind, the roar of the water, the towering mountains in front of me, the waving trees, the passing shadows, the lowing of cattle — these and many more, to say nothing of the bodily sensations, are all borne along on the stream of consciousness. Now that I have singled them out for use in this illustration, I become successively interested in them. This apparent diversity of ideas, nevertheless, forms a continuous whole, each having some influence on the other.

4. *That we claim every part of this stream as our thoughts, feelings, and ideas.*

•

5. *That the outgoing ideas fade away gradually, often disappearing and reappearing many times in a few minutes, while the incoming ideas are growing in intensity.* These outgoing ideas, like individuals, do not die or disappear without leaving their influence upon the newcomers. It is also true and proved experimentally that there is some preparation before these newcomers obtain a place in the focus of consciousness. Perhaps on the physical side it is the adjustment of nerve action. However, there is often something taking place that greatly affects present consciousness.

The Fundamental Law of Association of Ideas is that the simultaneous or successive appearance of two or more distinct impressions in consciousness tends to reappear in the same way. *It is called the law of contiguity.* So long as we knew nothing of the physical basis of association of ideas due to associated nerve paths, and accepted the current popular idea that things were related in mind because of their similarity or striking contrast, no possible explanation could be given for the apparent jumble of ideas that often comes and goes, and all the strange guests we have mentioned.

Satisfactory explanation of the relation and association of ideas must be based on the physical processes in the nervous system. The first step is physiological habit. In the morning I take up my razor to shave. A great number of muscular habits will simultaneously be operative in my fingers and hands, even the larger muscles maintaining a given posture. But as I proceed *successive habits* will determine the order—all because they were at *one time simultaneously or successively produced*. Such habits must also prevail in the paths, fibers, and cells of the nervous system, only with a

thousand times more detail. It is now universally admitted that *thought* is determined by physiological conditions, and the *order of ideas by the association of brain processes*. The fundamental law of contiguity is based upon the simultaneous or successive activities of brain processes. They are the laws of habit in the nervous system. But this is not a fact to be regretted, for *it is these basal habits of association that make memory possible*.

A recent theory concerning the physical basis of association and habit of the nervous system holds that these processes are due to the action of the synapses. The connection between neurone and neurone is called a synapse. From this we are to understand that a stimulus weakens the resistance of a discharge in its passage from neurone to neurone. The character of these synapses differ greatly at birth, and this difference is intensified by stimuli and education. The physiological details of this theory are too minute for a work of this character. Suffice it to say that there are many problems it does not answer. Are we to suppose that no modifications exist elsewhere? How then can we speak of habit where there are no synapses? Or how account for the tendency of cells to divide before synapses are formed? What abides in the neurones that causes them to reach out for the purpose of bridging the gap? *Modifications?* We might enumerate many more difficulties, but we leave the subject for more advanced study.

Laws of Practical Educational Value. Not all things have the same power in producing habits in the nervous system. We must therefore seek for the causes of these variations. Without doubt we inherit *predispositions* to

respond more readily in some lines than in others. Or, to express it in another way, habit is guided to some extent by instinct. We shall find other factors determining these variations. Such causes we call *Secondary Laws of Association*, inasmuch as they operate under the *Fundamental Law of Contiguity*. These are usually given under four heads.

1. *The Law of Repetition* tends to make permanent the modifications of brain fibers or cells whose activity is simultaneously or successively repeated. Viewing mental life as a whole, probably nothing else plays such a large part in the permanent association of ideas and consequently in memory. The existence of other factors accompanying mere repetition can easily be determined by a simple test or two that will also have a practical bearing on memorizing. Test I consists of ten short Norwegian words, with ten numbers opposite them. Commit them to memory by placing a cardboard over all except the first pair and then moving down to the last, repeating the pairs. Do this without stopping, until you can say them with your eyes closed. Record the entire time and the number of repetitions. Let the whole class do this. Then compare and search for individual differences.

TEST I

Igaar	3
Ellers	11
Kro	8
Ven	22
Herling	6
Afkrog	17
Gnist	21
Spag	4
Fri	12
Baade	9

Following the same directions as above, commit Test II and record entire time and number of repetitions.

TEST II

Horse	12
City	7
Sea	23
Fire	14
Books	2
Pig	19
Home	0
Travel	29
Justice	5
English	40

Compare the records for individual differences, and also compare this result with the previous record as to time and number of repetitions. Following the same directions, memorize Test III, which will not take you long.

TEST III

Love	Marriage
School	Study
Murder	Penitentiary
Mother	Child
Sun	Moon
Cause	Effect
War	Death
Dance	Music
Steamer	Ocean
Sunday	Church

Many interesting facts may be discovered in these tests. We progress from purely mechanical association, especially if we are ignorant of the Norwegian language, to causal relations and to where we draw largely from our past

experience and ideas. The first is about on a par with the old system of forcing on a child a meaningless alphabet and the spelling of meaningless words. Investigation would doubtless prove that much of the child's study, either by necessity or by not knowing how to study, is still of this nature. *Repetition will finally beget the results, but in all these cases it is not a question as to what can be done; it is a question of economy and of wholesome effect upon the mind.*

The comparison of results of these three tests made by several individuals will probably make clear certain peculiarities of different minds. For example, I have found that the novelty of Test I will often have a beneficial effect in helping to memorize it. Emotional interest fixes attention. In case two or more successive words begin with the same letter, this association is utilized. In Test III the majority never pay any attention to the second series of words after the first rehearsal. Former associations are dominant.

Should the words and numbers in Test I be so completely forgotten that you could not be certain of a single one of them as ever having appeared in the list, and then should half or more of them be injected into another list, the influence of past experience would be unconsciously manifest so as to render this test easier. To show this clearly a longer test should be selected.

By careful tests it has been recently shown that not only are the *immediately* successive impressions thus associated, but every second, third, fourth, or fifth one bears a relation to a corresponding one. For example, in a list of five hundred syllables there may exist some association between every

third, fourth, fifth, or sixth one. Having apparently forgotten such a list of nonsense syllables, it is still evident that a series composed of every third or fifth one selected from such a list is much more readily learned than a new list of the same number of nonsense syllables, *though there may not be any conscious recognition of these words as having been seen before.*

Again, suppose you are to commit to memory fifty lines of poetry. Select fifty lines from Tennyson; repeat them twice in the morning and twice in the evening until you can repeat all without the book. Then select fifty similar lines from the same author and selection and repeat as many times as you can without reaching a marked degree of fatigue. If necessary, try again as soon as fatigue has disappeared. Then compare the number of repetitions and time spent on the two. It will doubtless be found that the first test economizes time and energy.

Again, commit to memory twenty-five or fifty lines by learning only a few at a time, and then a few more, until the whole is learned. Under the same conditions commit to memory a similar number of lines from the same selection, only read the entire number each time until you are sure of the whole. Carefully record the time in each case. Which will have the advantage in saving time? In justice I should not tell you, but lest you never try it and because of its practical application to study, I say the complete reading each time has an immense advantage. The reason why this is not the customary method is due to the fact that the student becomes discouraged because several readings apparently bring no results. But when memory comes under such conditions, it comes all at once, and

then has the immense advantage of being under a continuous train of associations. In repeating the work it is not divided into sections that must be put together. It forms one whole.

2. *The Law of Emotional Interest* plays an important part in the association of ideas and fully explains many a strange combination of ideas. For example, my earliest recollection is that of being hurt by a horse; and associated with this incident is a vivid image of an old barn, even to the minutest detail.

An emotional undertone often colors all the associations of a given impression. A whole multitude of thoughts and impressions may be permanently cemented by an abiding *undertone emotion*. Lovers and homesick people know what I mean. The very thought of a Turk first brings to my consciousness the vision of an old, dilapidated bridge across one arm of the sea at Constantinople, the moon-lit hills of the Asiatic shore, the sound of the ships, the songs of some laboring Turks, and then a countless number of impressions concerning the general conditions. Because of the mingled feelings of joy and sadness prevailing that night, this vision is the starting point of days of reminiscences.

Interest of all kinds, and especially interest as presented in connection with apperception, gives direction to the association and relation of ideas. In the case of natural-born geniuses it is emotional interest that guides the association and relation of ideas. Here we must look deeper, for hereditary tendency helps to determine reaction in certain lines, just as the instinctive tendencies of animals give preference to certain stimuli.

No process of teaching or education can ignore the law of *emotional preference*. It operates always and everywhere in spite of our attitude. We should study it and turn it to positive use.

3. *The Law of Logical Relation* binds together by means of *cause and effect, or of some common element*. We have already had many examples of what we might properly call *accidental connection of thoughts and ideas*, due to their relation in time and space. The thought of my brother suggests a little mountain town, a beautiful river that glides by it, a canoe upset in the water, a runaway team. There is no logical connection or common element here. These impressions simply occurred at the same time and place. Without realizing it, our educational system once rested largely upon this accidental association. Many are still content with it in spite of the great superiority of logical connections.

The life of Socrates is naturally associated with that of such noble souls as Bruno, Spinoza, and Savonarola, because of the common elements. Nero may suggest Martin Luther because they *differ* in the quality of goodness. The causes of the American Revolution, for the logically trained mind, connect with many remote events of the human race. Sociological history that proceeds by means of cause and effect, and by common elements, is so superior to history of accidental association that it must eventually supplant the latter. For this reason science is proving herself superior to many other studies as a mental discipline.

4. *Voluntary attention* is usually stated as one of these *secondary laws of association*. I believe the term is difficult and unfortunate, as will be seen in the chapter on *Will*.

A better term would be *Consciousness of Effort*. But we shall make clear what is generally meant by the term *voluntary attention*. Concentrate your attention upon the next hundred words so you will know when you have covered a hundred words, and at the same time you must know something of what is said in these words. *Now do it. Begin.* You are at this moment changing your mental attitude. There is a certain tension which you feel in your muscles. A feeling of effort is the result. Strange ideas try to crowd you off the track, to confuse your counting, but you must succeed. You are probably forming an association, never before formed, between the line and the number of words in it. Perhaps you have some idea of the number of lines on a page. Hereafter you will remember where you did this, your position, surroundings, etc. If you have obeyed me, you know the Law of Voluntary Attention. It is more easily remembered than defined.

By this concentration of attention some ideas are given vigor. A number of noises are disturbing me now as I write. Should I focus attention upon them with a view to analyzing them and ascertaining the number, they would become prominent in the *stream of consciousness* and permanently associated. Even this has caused my attention to turn to them, and ever after these pages will probably suggest this series of impressions. That it is a cold, dark night will be, by accidental association, connected with this occasion.

I agree with James that this voluntary effort endures only for a few moments. We launch ourselves and soon we are carried on by the *stream of thought*. But the misleading thing is that we do not launch ourselves without a

cause, as is usually implied by this term. Why did you count those hundred words? Had I not commanded it, would you have counted? But this fact remains: *Concentration increases brain modification whatever the cause may be, and thereby furthers the association of ideas.*

Association in Dreams. Many valuable investigations have recently been made on the subject of *Dreams*. Dreams are lighter and more logical during daytime than at night. The structure of the dream also bears some relation to the deepness of the sleep. A French investigator, N. Vaschilde, claims to have found a brief period of forgetfulness on waking. He discusses to some extent "How to Control Dreams." All efforts to control the hour of waking affect dreams. The influence of suggestion can hardly be overestimated.

The most thorough and systematic research into dream-land is Freud's "Traumdeutung." On account of its important relation to the general problems of association of ideas the chief principles must be reviewed. The psychologist can no longer consider dreams a senseless complex of hallucinations, roaming lawlessly in the brain of the sleeper, nor simply psychic reactions to outside stimuli. Down deep in the subconscious is hidden a dream material that is coherent and logical. The dream is the translation of this hieroglyphic, symbolic material or record of the past life into common speech. Impressions in life, long past, especially shocks, strong feelings, desires, etc. are held symbolically. The translation is made by what he calls *free association*. We all have, treasured in the subconscious mind, many wishes suppressed since childhood. In

short, dreams are the fulfillment of repressed wishes. To secure pleasure and avoid pain is the law that reigns in the subconscious. The conscious *dream-content* which we relate is not the real *dream-thought*; it is only accentuated parts of it. The whole association and interpretation of symbols are secured from the individual by means of *psychoanalysis*. The details of this process we cannot enter into here, notwithstanding its great bearing on association of ideas. "The dream," says Freud, "is the royal road to a knowledge of the unconscious in the soul."

Under such an interpretation of dreams a much wider scope is given to the association of ideas; they almost seem to resort to subterfuge, disguising themselves as strangers. Whatever we think of the theory, the facts presented by Freud and others make it certain that we can no longer explain the associations in dreams simply as the free play of the nervous system in response to stimuli. Under apperception we have already seen how ideas are often disguised by associated ideas. Any strong outside stimulus may inject itself into a dream; but that is one thing, and being the cause of the dream is quite another. Any unexpected stimulus is likely to be injected into our waking thoughts and to modify them.

Our dream critics say that every dream contains something from the last waking state. An amusing, a sad, or a serious incident fixed on the mind to-day may reappear in a dream to-night. But all this may occur without these things being the primary basis of the dream-thought; and they become very misleading because they are likely to form a part of the conscious dream idea. I have no doubt that this scientific study will finally result in showing us

a greater and greater similarity between dream life and waking consciousness. If one could keep a perfectly accurate record of all ideas that follow any given joke or any sudden idea, such record would reveal strange associations of ideas.

Practical Results of the Association Method. Professor Jung of Jena has developed an elaborate system of tests in *association*. The work is related to and bears out the conclusion of the Freudian school. For practical tests a list of one hundred common words is carefully selected. The list has been perfected so as to strike readily all the practical occurrences of life. The words are then pronounced one after another, and the person tested is instructed to answer as quickly as possible with the first word that enters the field of consciousness. The time necessary for a response is carefully recorded. It is not so easy and simple as it appears.

In the first place many individuals show a marked prolonged reaction time. *This slowness of response does not depend on intellectual difficulties, but on emotions involved.* For example, the word *bride* or *bridegroom* will not produce a simple reaction in a young lady, but the time will be influenced by the feeling evoked. Sometimes the individual cannot react readily to some words. In cases of hysteria there are many failures to react at all. Sometimes the first word that occurs is suppressed, and then the individual is not content with a single word and gives several in which the original one will probably appear. The hysterically inclined individual makes everything personal.

This system can be applied to a number of persons suspected of a crime. Professor Jung gives many practical experiments. In one case he detected a thief among six nurses. A pocketbook had been stolen. He selected a number of suitable words, such as *door, key, open, cupboard*, names of things connected with the stealing, and then the names of all the things the purse contained. Other suitable words, such as *suspicion, theft, steal, police, lie, fear*, etc. were added. These were distributed among twice as many indifferent words. It is impossible to recite here the long process and the variations of reaction time. But the thief was successfully caught and openly confessed the crime. The system may also be applied to detect *feigned insanity*.

Another very suggestive application of these tests is the examination of several whole families. The most general conclusion drawn from these investigations is that all the members of a family seem to have a similarly lengthened reaction time for certain words involving peculiarly affective states, even though such states belong only to one of the family. Our writers conclude that it is due to the unconscious infection of the whole group. "Every patient," says Jung, "furnishes contributions to this subject of the determination of destiny through the influence of the family." This emphasizes the importance of the emotional life in early childhood. It is not so much the open teaching that forms the character of the child as the permanent moods and undertone feelings of the parents, or the concealed discord, the secret worry, the repressed wishes. All these unconsciously work their way into the child's mind. These movements may reveal much of the hidden soul life through the association of ideas.

CHAPTER IX

FUNCTION AND DEVELOPMENT OF MEMORY AND IMAGINATION

Memory and Imagination in Animals. Gradually we are passing from the old theological idea that animals have only instincts, man intellect. This doctrine my first teacher of psychology taught without compromise. Yet she was injudicious enough to mention the case of her dog that was kept in the house during the time he had a broken leg. She stated that months after he was well, when scolded for being in the house, he would feign lameness. I have often wondered if she was stupid or only bookish, that she did not see that this case involved *some* kind of memory, imagination, and inference or reasoning — *some kind*, I say.

In proportion as our knowledge of the wonderful power of animals to modify instinctive activity has advanced, have we been compelled to concede the modifying influence of some kind of intelligence. Our chief difficulty lay in our desire for classification and nomenclature. We may look in vain for any time or place where memory, imagination, and thinking came into existence as we find them in ourselves. They are the products of a gradual evolution from older and more unconscious forms. They exist now even in human beings in all kinds of forms, combinations, and degrees.

Six new psychologies on my desk are each much concerned as to whether animals have ideas in the form of *images*. I am reminded of James's great address on "Human Immortality," in which he said to a band of missionaries: "Be honest; not one of you ever pictured to yourself a heaven overflowing with Chinamen. Why should I be jealous if even the leaves on the trees are immortal?" Is an image an absolute necessity for memory? If so, it proves too much. The power of image formation varies in all degrees with human beings. In my limited investigations I have found at least a half-dozen students practically devoid of any visual imagery. Galton in his pioneer work on these lines says, "To my astonishment I found that the great majority of the men of science to whom I first applied, protested that mental imagery was unknown to them."

Romanes has given a number of cases of memory in birds, horses, elephants, dogs, and monkeys, which any one can verify by observation of the higher animals, and which certainly involves some kind of *conscious memory*. I cannot subscribe to the statement that "there is no good reason for believing that any animal possesses memory in this, its truest form." On the other hand, the facts compel me to concede the statement of Miss Washburn, that "it is not likely that any such gulf separates the human mind from that of the higher animals as would be involved in the absence from the latter of all images of past experiences." The evidence of memory and imagination in animals will become clearer when we consider varieties of memory and imagination. The common interpretation of animal activities assumes the existence of these powers.

Varieties of Memory. 1. Since Hering's remarkable analysis of *organic memory* the use of this term is not only proper but necessary. It includes the power of organic tissue to retain past impressions which predispose to certain future lines of action. The powerful force of heredity has its basis in *organic memory*. This is also manifested in the reflex activities already considered. In the highly developed reflexive and often habitual activity, consciousness may accompany the process, but the cause seems to abide in the organic tissue.

The many acquired secondary reflexes, such as walking, highly perfected playing of musical instruments, performances of thoroughly trained animals, expert marksmanship, seem to have lost in a large measure their dependence on consciousness, and the power seems to abide in the muscles. To know that this power exists and how to conceive it are two different propositions. Houdin, having practiced until he was able to keep four balls in the air at once and at the same time to read from a book without hesitation, says that after thirty years, with scarcely any practice, he was able to read while keeping up three balls. The question of conscious memory in animals is largely a question as to how much *organic memory* can explain.

2. *Semiconscious memory* is a term I would apply to a large field of psychic activities, not exactly *reflex* or *habitual*. One writer has presented some of this material under *noninstinctive adjustments on the organic level of consciousness*. "In walking we go through the crowds, turning this way and that way without bumping into anybody. We avoid stumbling over rough places, turn aside for trees, for stones, for muddy spots. We come to a stream and give

just the right spring to leap across it. We balance on one foot, we shoot a target, we hit or catch a baseball that is thrown. We drive a tennis ball aright, walk on the rail of a railway track, or even learn to walk a tight rope." These and hundreds of other adjustments that might be mentioned, such as bicycle riding, dancing, circus performing, coming down a flight of stairs in the dark, turning to the proper corner for the book one happens to want, while apparently occupied with something else, are generally not wholly unconscious; but no image of any past performance seems to be necessary. *The conscious part seems concerned only with the end to be accomplished.*

In a much larger way many dim memories of past experience exercise a control over our flow of ideas and over our conduct, without thrusting any vivid images into consciousness. A sudden shock, an insult, a fright, a sad story, a grand theatrical performance, a powerful book—none of these lose their guiding effect on life as soon as they cease to be evoked in the form of conscious images. Shall we then say they are in no wise remembered?

3. *Recognition and the feeling of familiarity* are forms of memory that are doubtless more primitive than memory images. Such are probably quite common to animals and are always evident in human experience. Neither are they the same as anticipatory images, such as the child forms in anticipating the outcome of a story. These images are constructed by imagination out of memory material. The lower orders of *anticipatory images*, such as some writers believe to be the only kind of imagery in animals, need not involve consciousness of past experiences; but they are the raw material for memory images, and it seems

hardly probable that the result of actions can be anticipated by animals without some aid from sources such as are presented under semiconscious memory.

Can we not recall many cases when a given passage, a poem, a story, a person, a place, an anecdote, or an incident seemed familiar, yet we were unable to locate it in any definite past experience? Sometimes this may be due to a past similar experience which we do not recognize because we are confusing similarity with identity, but it may also be due to *partial memory*. A strange speculative theory about a past existence has been invoked to explain the *feeling* that we have been *here* before when we know we have not. In all such cases, what is not due to *auto-suggestion* is undoubtedly due to a *past similar experience not then recognized*.

Again, there are countless numbers of experiences that will never again be in consciousness unless similar experiences are thrust upon us. *Then we recognize them*. We may even be sure of the experience, but unable to locate it in time and place. Recently a young lady called to see me. I felt positively sure I recognized her. I secured her name, acted as if I had always known her, and, being so sure, I said, "Where did I meet you?" She replied, "Nowhere." I am still at a loss for an explanation of this positive feeling of certainty, but it must be related to some past impression of some one else that now dominates this interpretation but does not fully rise in consciousness.

4. *Memory images of the different senses*. Visual images predominate in most people, and with some they are almost the only mode by which memory and imagination represent the past to the individual. It will be an easy

matter to get an insight into this individual variation. Select forty or fifty words, such as *dancing, battle, thunder-storm, merry-go-round, coffee, toothache*; request the class to note what first comes into consciousness as you utter these unexpected words. Some will *see* the dance hall, the battlefield, the lightning and the sky, the steam rising from the coffee. Some will *hear* the music, the cannon roar, the music of the merry-go-round. Others will *feel* the movement of the dance or of the merry-go-round, the shudder produced by the thunder. A few will *smell* or *taste* the coffee. If this be carried far enough, careful selections made, and records kept, you can discover the *dominant* tendency of each person.

Remarkable individual differences exist and should be taken into account in our educative process. Persons strongly inclined to be *visual-minded* find it difficult to learn a foreign language through the ear. It is this type of mind that may play a half-dozen games of chess at once, blindfolded. Those *ear-minded* find the oral language easy. To have images of taste, smell, and movement is not common, but many very marked cases may be found. Very few individuals are limited exclusively to any one of these kinds of memory, but in most people either visual or auditory images predominate, and motor are perhaps next in generality.

5. *The complete memory process.* This includes (1) retention of past impressions; (2) recall of such impressions; (3) recognition as a past experience; (4) location in space and time; (5) association of impressions in normal relations. Certainly it has now become evident that we have not only memory, but memories; that memory

is the product of a developing process, as are all other faculties and powers of man; that memory is inseparably joined to imagination.

Another important fact should be noted in this connection. We have memories for dates, for names, for poetry, for events, etc., that are comparatively distinct. Cultivation of memory in any one line adds little power in others. The mail clerk who can call twelve or fifteen thousand people by name *on sight* has not, in any discernible degree, increased his power to commit poetry to memory. Some minds are, by their very inherited constitution, more inclined to some lines than to others. The musical or mathematical prodigy furnishes a good example. In other cases interest, habit, and exercise determine our chief memory ability.

The Physical Basis of Memory. It is now conceded (1) that memory is wholly conditioned on brain paths and their connections; (2) that no past event can appear in consciousness unless the same fibers and cells are again stimulated to action quite similar to the original; (3) that retention and recall are but the law of habit in the nervous system; (4) that when certain parts of the brain fail to function or are destroyed there is temporary or permanent damage to memory.

Such diseases of memory are well described by Ribot. *Aphasia* is the loss of the power of speech, due not to any defect in articulation or in general intelligence; *it is forgetting how*. *Agraphia* is a disorder by which the individual forgets how to write. The muscles are all right, but memory of the past art is wanting. *Alexia* is loss of

memory of the process of reading. We also have many cases of purely intellectual phenomena in which memory fails in particular lines only. The loss of the power to remember proper names, while memory for all other things is normal, is occasionally found.

Reference has already been made on page 127 to the personal observations on a physician's daughter, who had received a severe injury by falling from a third-story window. When I met her she was perfectly well, but very deformed, had regained her mental power and vigor except the ability to call proper names. As a substitute she described in minute detail until the person or object referred to was clearly recognized. Such diseases of memory, as well as other disorders that might be mentioned, together with the results of many surgical operations, compel the conclusion not only that memory has a physical basis but also that *special memories* use specific parts of the brain. How these impressions are retained in the nervous substance is entirely beyond the power of imagination and belongs to the absolutely inconceivable.

It was once generally believed, and still is by some, that all ideas that were once in consciousness, and that may still be recalled, continue to exist somewhere as ideas. But this baffles my imagination. Perhaps a scientific fact might help us in our conception of the way these impressions are treasured up. While the records of a Victrola lie unoperated on my table are there, in reality, any songs, operas, voices of men and women, emotions of love, religion, etc., or only the *potentiality* or *possibility*? While probably no imagination will ever be powerful enough to picture how these millions of delicate and different impressions

are treasured in the nervous system, and, what is still harder, how they are again brought into living reality, yet it seems that this is the only possible direction in which the truth can lie. However, let no one suppose that this gives any support to materialism. Whether the essence of things is materialistic or spiritualistic is a philosophical problem, and from speculative considerations we are compelled to a spiritualistic rather than to a materialistic philosophy.

Relation of Imagination and Memory. To make a complete separation of these two functions of mind is impossible. *Pure memory is consciousness that the phenomenon has existed in the past and essentially as it is now. Pure imagination is consciousness that this particular representation has not yet existed for us as it is now in consciousness.* Between these two statements there is a distinct difference. But we have taken only the extreme forms of both processes.

Let us take a few different cases. I once saw a boy stab another. Many times my imagination or memory (which shall I say?) pictured the scene. When called before the jury I had a definite image before my mind as to how it all happened. Suppose the image was all wrong, shall I charge the lie to the memory or to the imagination? In dealing with children the pedagogue recognizes *the lie of the imagination*. Do such lies exist among big children? Yesterday I read a description of a sinking ship. Suppose I now make a drawing of it. Is that memory or imagination? Last year I saw the parliament building in Victoria. I will now draw the front lawn, putting ten trees in the

front row. Suppose there were only eight, yet my imagination makes me believe there were ten, because it harmonizes with what *I think would be the proper number*. Are there not thousands of false memories due to this undertone desire to have things *harmonize* to suit us? Suppose at first I *knowingly* put these extra trees there, but *later* come to think ten the original number?

James long ago placed all memory images under the imagination, showed how vague and indefinite they usually are, and how they vary in different individuals. I am sure these suggestions will suffice to make clear the close relation of memory and imagination and justify their joint consideration. One difference between an image of past experience, or memory image, and the true imaginary image, is often the extreme changeableness of the latter. Often these imaginary images are as changeable as moving pictures.

Strange Visual Images. Some years ago I was very much interested in number forms and collected about one hundred forty-seven, to which I have since added several. I not only found that about one in every fourteen persons has one of these strange number forms, but that many have forms for the days of the week, months of the year, and the twenty-four hours of the day. Some have forms for certain anthems, the Lord's Prayer, the Doxology, and the alphabet. A few see the printed page in various colors, certain letters always appearing in a given color. Some see certain colors when some specific high notes are struck.

The general character of a number form is such that whenever a number is thought of, it appears in the same place on a visual diagram which is invariably called up

and viewed by the mental eye. Sometimes these diagrams are enormously large. Galton, who first studied these phenomena, says: "Sometimes a form has twists as well as bends, sometimes it is turned upside down, sometimes it plunges into an abyss of immeasurable depth, or rises and disappears in the sky."

These forms are useful to the individual. I found but six who could remember when and how the forms originated,

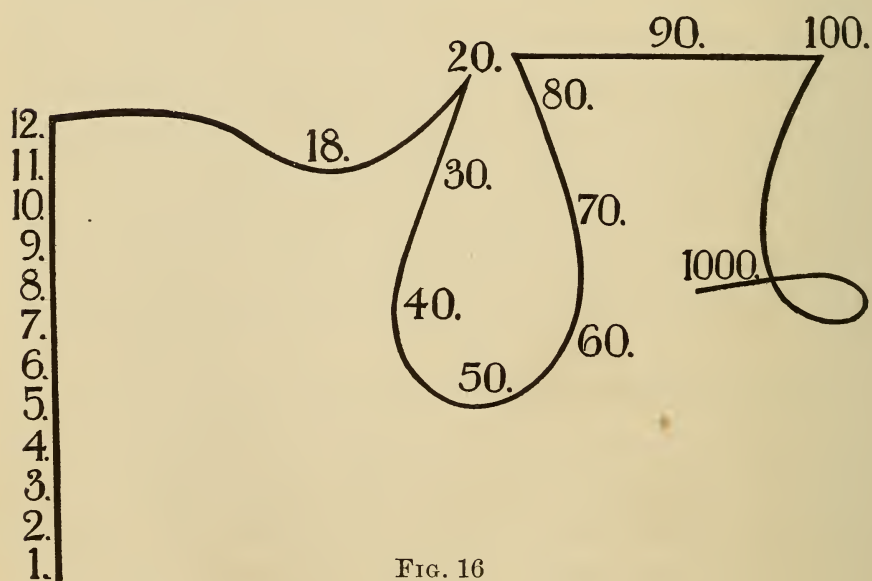


FIG. 16

and in no case was the explanation satisfactory, even to the individual. In spite of their early and mysterious origin I cannot believe, as Galton does, that they are hereditary. Their origin lies in the early, free play of the imagination. These forms do not constitute a class of distinct phenomena. They are a part of the endless variety of mental imagery. Not only is this true, but there are many indefinite and embryonic number forms. Many

children when counting simply have a sensation that the numbers go to the right, up, or down. A noted mathematician said he had no number form, but that his number series *contracted* as it advanced into the thousands.

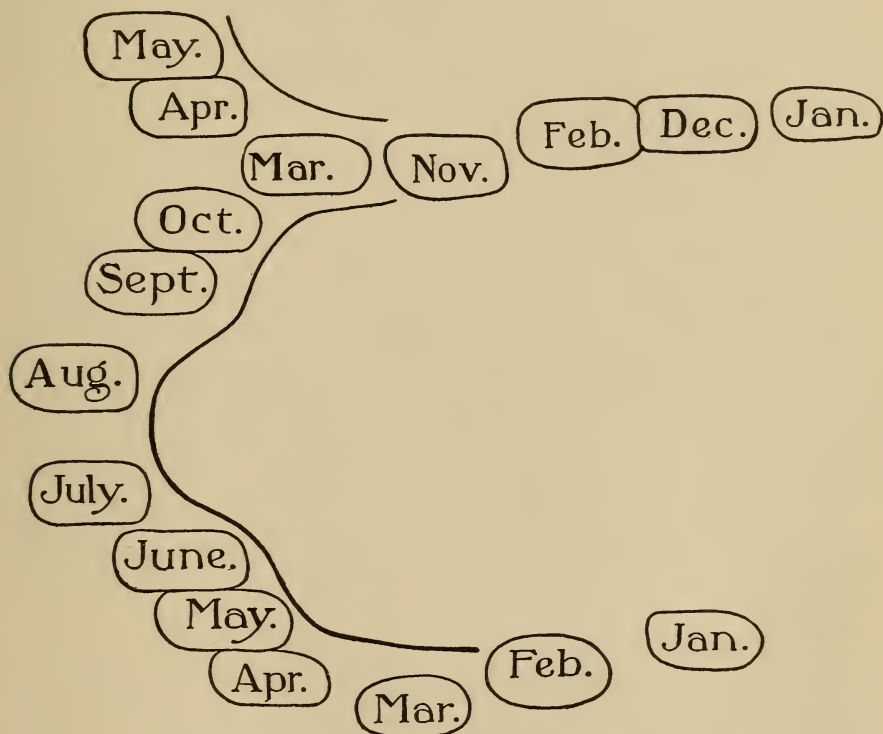


FIG. 17

Fig. 16 is the number form of a professor of philosophy. He was astonished to learn that any one could conceive numbers in any other way. Fig. 17 is a young man's form for the months of the year. No two forms I have ever seen bear any close resemblance. The varieties are as great as the number of forms. The great lesson to be drawn from all this is that we must not believe that

our mode of conceiving things is the best, the only correct, or the only possible way. What may be impossible to us may be easy and natural to others.

Values and Dangers of the Imagination. The best things in the world are also the most dangerous. This will certainly apply to the imagination. Let us note briefly its immense value.

1. *Appreciative imagination.* In the production and enjoyment of literature and art, imagination is the supreme factor. In reference to Maeterlinck's "Blue Bird," which has been enjoyed so much, a cultured gentleman lately said, "Maeterlinck's imagination must be wild almost to the point of insanity." "Yes," said I, "and the individual who gets and enjoys his meaning must have a wild imagination behind which abides the guiding hand of large ideas."

2. *Constructive imagination* is the pilot of science and invention. Without this, invention would come to a standstill.

3. *Idealistic imagination.* The imagination is a powerful element in producing character under the guidance of *ideals*. An individual without effective ideals is a drifter without a destiny. From the daily experiences of life and from the noble characters of history and literature the imagination may construct these ideals. I have little hope for the young man or woman who has not sufficient ambition, interest, and imagination to construct an ideal destiny.

4. *Music-imagination.* Imagination puts a soul into both the production and the enjoyment of *music*. This is one of the elements that comprehensible words add to music.

The words must be such as to provoke mental images within the range of the experiences of the individuals. This alone will give life and interest. A soul rich in past emotional experience and gifted with imagination cannot fail to be moved by *appropriate music*. The disregard of these factors in much of the music for children and by many music teachers in our public schools is a serious blunder. Music must not be regarded simply as a science, an art, an accomplishment; its supreme function is to enrich human feelings and add joy to life.

5. *Reminiscent imagery*. The enjoyment of the past is chiefly the result of a vivid imagination. Here good habits and education play an important part. If not, the mind comes to dwell upon the dark side of life, to magnify this darkness out of all due proportion, to get sorrow even out of past pleasures because they come not again. "Gone are the days when my heart was young and gay," and a thousand other phrases, so keenly enjoyed by many, are echoes of this tendency. But they are still in the land known as the *luxury of grief*, and may never pass into despair.

6. *Sympathetic imagination*. Sympathy with others is largely dependent upon that power of the imagination by which one lives in the conditions of another. Those who have never known need, want, poverty, are one step removed from the possibility of genuine sympathy for the starving thousands. Those who have neither known these things nor observed the conditions of the poverty-stricken are two steps removed from the possibility of genuine sympathy. You blame them to no effect. They may give of their goods, but for sympathetic *feeling* they are lacking in material.

The dangers of imagination may be briefly presented under three heads: (1) *Criminal imagination. Imaginary crime tends to become realized.* There is a practical essay by Holland on "The Sins of the Imagination." It is full of psychological truth. In psychology we recognize sudden psychic breaks, and the explosive character is not uncommon; but for most objective crimes we have reason to believe that a period of incubation in the imagination is necessary. (2) *Pathological imagination. Serious bodily and mental disorders* are often the product of the imagination, and those that have some other origin are often greatly increased by the imagination. This topic will receive further consideration in the chapter on *Mental Healing*. (3) *Idle daydreaming* may be pleasurable, but it is detrimental to mental discipline and squanders time that could be put to better use.

The Education of Memory and Imagination. 1. The ways, means, and extent to which these powers may be and should be improved are still problems in education. Some years ago Professor James startled the educational world by saying that "*no amount of culture would seem capable of modifying a man's original retentiveness.*" His original power is based on the number of brain cells and their connections. But the same writer added that "all improvement of memory consists in the improvement of one's habitual methods of recording facts." The elaboration of our methods of association is still, in some degree, at our command.

The more I study the educational process the more I am convinced that what we chiefly do for these powers

of memory and imagination is to direct their energies in certain lines rather than actually to increase their *power*. I have little hope of inflaming a flickering spark of imagination into a consuming fire. Of course many will cite cases of sluggish imaginations becoming creative and powerful under stimuli. I have seen that happen to many children under no stimulus save their natural development. General education is destined to become more and more a *directive force*. *Its second great function will be to economize time and energy*. We have overestimated our ability to rectify the supposed mistakes of Nature.

2. *The Laws of Memory are essentially the Laws of Association of Ideas*, already considered in a previous chapter. Their importance justifies a brief restatement. (a) *Relation by means of cause and effect or by adequate classification of facts gives us the highest form of memory and the one to be sought in our educative process*. (b) Clear, vivid images are most easily recalled. (c) *Emotional interest* is a powerful factor in determining what shall become a permanent part of one's stock of past experiences. (d) *Repetition* deepens the brain paths and helps to insure association and recall. (e) *Voluntary attention*, being accompanied by *effort*, secures a more vivid image and strengthens memory. (f) Other things being equal, the most recent impressions are the most likely to be reproduced. (g) This new memory material may seem permanent, but soon it begins to slip away very rapidly. At first this process of forgetting goes on so rapidly that it seems that all will soon be gone; but what remains goes slower and slower. Ebbinghaus, after many tests, declared that a person may retain almost as much after thirteen months as after twelve months.

Suggestions to the Student for saving Time and Energy.

1. In applying the law of *logical connection* seek for the natural grouping and relation of things, no matter in what class or book such facts be encountered. Learn to see the psychology there is in literature, the lessons of sociology contained in novels, etc. The mind I appreciate most is not the one that presents the greatest number of facts, first, second, etc., but the one that sees the relations, agreements, or disagreements. Seek relations everywhere. Every lesson has some examples for other lessons if properly seen. Never throw your mind into chaos by cramming disconnected facts for examination. *Your mind is worth more than your grade.*

2. Where only an ordinary comprehension is desired, it is a mistake to read with the reserved understanding that the material is to be read again. Such understanding lurking in the dimness of consciousness will help to dissipate attention. As a rule, read rapidly and with the positive understanding that you must get it then or never.

3. Time and energy are saved by reading the whole from beginning to end each time until it is learned.

4. *Rapid repetitions are much better than slow ones.* Slow movement of thought allows foreign ideas and associations to be formed. For all occasions rapid reading secures better results than slow reading.

5. In learning anything that requires several repetitions, after a few repetitions it saves time and energy to allow some time to elapse before returning to it again. Just what the greatest lapse of time between repetitions, and the greatest number of repetitions at any one time should be, will depend somewhat on the length of the material

to be memorized, the physical condition of the individual, the tendencies to fatigue, and the relation of recalling to forgetting. Refer to tests given under association.

6. If possible, first understand what you are to learn. We should never compel *memory* first and hope for *understanding* later.

7. Finally, let no one attempt to carry a mass of rubbish and junk in his mind. To burden the mind with the non-essential and trivial is to forget the more essential. It is a waste of precious energy and life to insist on carrying a jumble of *stuff* on the assumption of disciplining the mind; there are enough useful things to discipline the mind. I respect the individual who refuses to carry in his mind the names of all the capes of Europe and the cross-roads of Texas. *Judicious forgetting is a necessary adjunct of a good memory.*

Memory and Court Testimony. Evidence in court was once considered to be either conscious truth or willful lying. That both lies and truth might be told unintentionally was not dreamed of. Browning, in his great work, "The Ring and the Book," makes a literary attempt to show how impossible it is "to tell the truth, the whole truth, and nothing but the truth." But the subject has recently received scientific investigation, and I append here the chief conclusions of the principal investigator, Professor Stern of Breslau University.

Experiments made on students as to the number of pictures in a room showed that by "narration" immediately after observation five per cent were in error, and some weeks later, ten per cent. By "interrogation" the per cent of

error increased to twenty or twenty-five. Another set of experiments which involved the simple incident of a gentleman entering the room, conversing briefly, taking a book from the shelf and departing, showed a week later twenty-five per cent in error by simple "narration," and fifty per cent in error by "interrogation."

We must now state the practical conclusions without further rehearsal of experiments. In home and school discipline we should not consider a report demonstrably false necessarily a lie and to be punished accordingly. The unconscious power of fancy, imagination, and faulty memory may account for it. Falsification by children when under fire of questions and suggestions is natural and almost unavoidable. The sworn testimony of a competent witness can no longer be regarded as consciously true or false. The more a witness is left to spontaneous narration and the less suggestive questions he is asked, the less will be the danger of falsification. Whenever identification is involved the witness should make it without suggestions as to features, dress, etc. Colors are poorly remembered, and after lapse of time testimony concerning clothing is almost worthless. Short intervals of time are liable to be overestimated, especially under emotional excitement. The testimony of children and adolescents should be given special consideration. Lawyers should occasionally be the subjects of memory tests, in order that they may see how the answering of questions is actually performed.

The practical application of psychology was first directed to education. It is now being extended to medicine and law with every evidence of fruitful results and great modifications of old beliefs.

CHAPTER X

PROBLEMS OF HEREDITY AND ENVIRONMENT

The old adage, "Better to be born lucky than rich," has its root in observation, but is the result of misinterpreted facts. Luck and chance, implying the absence of adequate cause, have no place in this universe of order. The adage should be, "Better to be well born than rich," because the only degrees of wealth in this world are the degrees of life. "There is no wealth but life," says Ruskin.

There is no problem of modern science which cries so loudly for public attention and information. It is the supreme demand of the hour, because it is here that the cost of ignorance is paid in direct terms of human life. Here the old impressions of the populace are frequently contrary to the well-established facts of science; but without public opinion nothing can be made practical. Some surmise of its importance might be gained even by a glimpse of the work going on in this line all over the civilized world. Oxford University has recently appropriated a large sum of money for special researches in heredity.

The old doctrine declared that each individual has the same kind of a soul with equal potentialities. Science says no two souls come into the world alike. No two individuals start life equal, either physically, intellectually, or morally. The strongest statement we can make concerning equality is that individuals may vary from approximate

sameness to all degrees of unlikeness. Galton made extensive studies along these lines, including some twenty cases of twins. In nearly every case he found evidence to the effect that "their increasing dissimilarity must be ascribed to a natural difference of mind and character, as there has been nothing in their treatment to account for it." Mr. Galton's impression is finally summed up as follows: "The impression that all this leaves on the mind is one of some wonder whether nurture can do anything at all, beyond giving instruction and professional training. There is no escape from the conclusion that nature prevails enormously over nurture when the differences of nurture do not exceed what is commonly to be found among persons of the same rank of society and in the same country."

Suppose training and environment are able to strengthen some relatively weak powers of the original nature, and prevent the development of stronger ones; that is no argument for denying the existence of such qualities or affirming that it is a wise thing to do. Do a man's inherent qualities so combine as to make him a poet or a painter, a scientist or a mathematician? That depends upon the degree of original organization and unity. In the greatest geniuses, yes; for the majority of cases the inner natures only indicate a general direction.

By putting a false meaning into heredity, never applied by science, the get-there-quick reformer would instruct the public to ignore heredity and base all reform on environment. This is contrary to the important revelations of modern science. By minimizing and ignoring the primary cause these reformers become more hopeful in dealing with the secondary cause — environment. Suppose that by some

Faust-like magic we could rid the world of objective evils and the objective conditions leading to those evils, such as saloons, dens of vice, fraud, and dishonesty. Still, would not the same inherent nature that developed these conditions develop similar ones in the process of time?

Viewing conditions as they now are, this phase of psychology is more important than any other. In a book like this everything must be elementary and introductory. Therefore we shall attempt a simple statement of some facts and problems, with a hope that such may arouse interest, lead to further study, and to a better-informed public.

Meaning of Heredity. Heredity, as used in ordinary speech, has two meanings — one now scientifically proved false, the other only a part of the truth. Heredity is often used to cover only the qualities, habits, and characteristics acquired by parents in their lifetime; but these functional and structural changes produced in an individual by conditions are not now generally believed to be transmitted. Such modifications must be distinguished from the poisonous effects of certain diseases and of drugs that act directly on the germ cell to poison and deteriorate the same. For thirty years all efforts to produce any evidence of the transmission of these functional and structural changes acquired during the lifetime have failed. There is a wide difference between an acquired function, such as swiftness of foot, facility in the use of many languages, skillfulness in piano playing, acquired diseases that do not act as a poison on the germ cells, crimes for which conditions are responsible, and the *effect produced by saturating the system with a poisonous alcohol*. Poisons

act directly on the germ cells. There is no proof, nor are there any indications, that these first-mentioned acquired functions are inherited. Slum children are born ready to start where their parents started, in spite of the deterioration of their parents. It has been proved that their stunted growth and proneness to disease are due to their environment. Have not the retinal and optic nerves of our ancestors been stimulated by images from the external world probably for half a million years? Yet the naturally blind have no images or tendency to form them. What hope then may we entertain that a few hours of muscular exercise, of mathematical thinking, of piano playing, etc., will ever modify the course of our offspring?

Mention should be made of two popular beliefs concerning heredity. One of them is the belief that a female's offspring, animal or human, by a second mate will tend to resemble the first mate. Darwin cited one case as scientific. But all efforts to produce satisfactory proof have failed. The belief is certainly founded on the tendency to draw conclusions from individual cases of coincidence and suggested resemblances.

The other is that almost universal belief that the mother's mental condition during pregnancy may modify the offspring even to the extent of marks and physical deformity. There is no scientific evidence for this widespread belief. Many children are born with some abnormality and a large proportion have some mark on the skin. Coincidence and suggestion are probably the sources of this belief.

We shall continue to look with interest upon the efforts to prove the inheritance of acquired characteristics. It

is certainly not proved yet, and all indications render it doubtful. Even if it were true, experiments have now proved that such heredity must always remain a comparatively small factor in the development of the race. If the activities and conditions of the organism during its natural existence affect the coming generations, such effect is almost an imperceptible accumulation, and especially inclined to be manifest in some indefinite form.

Is this a denial of heredity? "Now who could have predicted," says Dr. Saleeby, "that this plain and simple truth would be regarded by some people as constituting a denial of the principle of heredity. 'The bubble of heredity has been pricked,' says Mr. Bernard Shaw." Many advocates of environment have seen only this much in heredity.

Again, in ordinary speech, heredity means that we can trace the given characteristics in some one or more of the ancestors. This is an accurate use of the term, but it is not all of the truth. *There are also hereditary qualities that cannot be traced in the ancestors.* Such are those that belong to *spontaneous variations*. Such variations are constantly occurring throughout nature, and man is no exception. They are also being greatly multiplied artificially. Dr. Saleeby tells us that Professor Biffen "has called into existence a new kind of wheat such as never existed before."

There are thousands of qualities and combinations both physical and intellectual coming into existence by what I have called *creative variation*. Idiots, imbeciles, and deformed children are often born of parents in whose ancestors we cannot trace these characteristics. Geniuses are often like products. *All such variations tend to be inherited.* Investigations show that children from parents born deaf are

more than two hundred fifty times as likely to be deaf as children of parents whose hearing was not impaired. Other physical defects follow similar ratios. It is also equally true that the spontaneous mental variations, whether good or bad, tend to reappear in the offspring; that is to say, that the children of naturally gifted parents have many more chances to be gifted than the average child. But by *creative variation*, which works from inner causes unknown to us, may come naturally gifted individuals from any people. Once started, these qualities tend to persist. Imbecility and idiocy may occasionally appear among the children of naturally intelligent parents, but the struggles of the past have been against the propagation of these qualities.

Dr. Saleeby takes Shakespeare as an example of the hereditary genius in whose ancestors his talent cannot be traced. He says no one would say that Shakespeare's genius was hereditary in the sense that it can be traced in his ancestors. Are we, then, to say that it was acquired? Would not every one protest that a poet is born, not made? Was his genius then neither inherent nor acquired? What a dilemma! But his genius was inherent in him at birth, and in some mysterious way was given to him through his parents. Now what is true of this case may be true in an infinite number of cases and of any quality or lack of quality. In any accurate sense of the word these qualities are hereditary and tend to reappear in the offspring. Children born blind are likely to have children of defective eyesight, and ere long, as we have abundant proof with animals, these qualities become permanent possessions of the race. The bubble of heredity has not been pricked, for heredity now speaks with a power and authority never

before dreamed of. There are enough plain, simple facts about any farmyard to substantiate the claims of heredity. It is by taking advantage of these variations that the astounding results in horticulture and the improvement of animals have been accomplished. Heredity includes every possession, actual and potential, that the organism brings into the world, no matter whether such be the gift of the gods or of parents.

Whence come these Hereditary Qualities with which Every Child begins Life? We may simplify our problem by stating these sources under five different heads. Of course it is not possible to make a classification of these characteristics and tendencies so as to indicate the origin of each.

1. *Characteristics of humanity.* Everywhere men have certain inherited qualities in common. They have physical form, organs of sense, feelings, passions, intelligence, and will. The general forms of these are descended by heredity from countless ages of the past. These children of humanity are subject to the same diseases, sustained by the same food, and filled with similar longings and emotions. All battle with Nature. By his *inheritance of humanity* man triumphs where other animals fail. Some one has said: "Man is Nature's rebel. Where Nature says *Die!* man says, 'I will live.'" But man does not *will* Will. He inherits it by being a man.

2. *Race inheritance.* Without taking into account what is purely habit, custom, and what abides only because it is acquired by each generation anew, we must admit that there are certain parts of each one's heredity that are racial and

that cause him to differ in some degree from individuals of other races. Ethnologists have studied these physical and racial traits with great care, and believe them to be accompanied by mental traits that divide races and determine their progress. Dr. Brinton says, "The differences among men are the results of physiological processes proceeding in definite directions under fixed laws." The Negro, the Mongolian, the Latin races, the Anglo-Saxon — all have many characteristics of humanity in common, but each has, in addition thereto, many traits not common to the others. Latourneau states that the races and subraces can be classified according to their mental traits, characteristics, and differences. Many writers on sociology now believe that the inherent nature and tendencies of a race, such as the Teutonic or Latin, have more to do in determining the nature of the religion accepted than the religion has to do in forming these qualities.

3. *Characteristics of the father and mother.* Every child tends to inherit the qualities of its father and mother, but chiefly the qualities which they brought into the world, not those habits, characteristics, and modified structures which they have acquired during their lifetime. It is impossible for the child to inherit all the features and qualities of both parents. What combination will take place is a problem of future embryology. Whenever two cells unite to form a new organism, one half of the chromatin bodies which are the bearers of heredity are cast off. In each cell there is always an even number of these bodies, and the new cell still contains the same number after the two have united. This process is a powerful factor in determining variations in heredity.

4. *Individual characteristics due to certain variations.*

The general tendency is to be like the parents, but there also exists a tendency to be unlike in some measure. In evolution this is known as *spontaneous variation*. It is chiefly by these qualities that the individual is distinguished from the mass. One's variations in size, in color of hair or eyes, in structure and general features, in passions, in emotional temperament, in intellect, and in an infinite variety of gradations and combinations of qualities — all are possible inheritances for future generations, and are likely to reappear in the future offspring. That natural, spontaneous variations favorable to moral and intellectual development may be transmitted is now proved.

5. *Latent potentialities, capabilities, and limitations.* It often happens that a specific and prominent inherent characteristic of the father or mother may not appear in their posterity for several generations. This was originally called *atavism*, but recently some objections have been raised to this use of the word. Fortunately the idea can be secured without disputing about the name. A few cases will illustrate this principle. Color-blindness is inherited chiefly by the male. A father who is color-blind may have a half-dozen daughters with perfect power for discriminating colors. These in turn may have children and no color-blindness is likely to appear until a male child is born. Hæmophilia is an incurable blood disease of which the victim dies in maturity. It is hereditary but chiefly inherited by the male children. A mother perfect in health may give birth to a son who will die of the disease later because his grandfather or great-grandfather had the disease. Spencer traced the case of double

thumbs through several generations, found many variations, sometimes double toes also, and found, moreover, that the quality often remained latent for one or two generations.

What is true of these physical characteristics is also true of mental and moral variations, and of *limitations*. They are carried as potentialities for an indefinite time, and, under causes which we cannot discover, may reappear. Some believe that in this manner we inherit from our most remote ancestors — that there is latent in us an infinite number of characteristics and impulses. Jack London's "Call of the Wild" is a good illustration of the large phase of this idea. Do you any longer doubt that heredity is the mighty power behind human life? If so, continue to investigate the discoveries in heredity during the past forty or fifty years.

We inherit Things only Potentially. Where were all the thoughts and ideas you have had since you began to read this chapter? Did they already exist in your mind? Did all the ideas and feelings you have had since you were born, exist in your mind as such at birth? No, you only possessed the potentiality. For psychology things are continually coming into existence. Creation is everywhere going on. The great works of Shakespeare, Goethe, Beethoven, and Raphael did not exist in these men as actualities at birth, but only a combination of conditions that made such things possibilities; neither did the military activities and powerful ambition exist in Napoleon at birth; nor was Nero born a murderer — only the strong potentialities did he bring into the world.

Many hereditary qualities do not manifest themselves until maturity or even much later. Talents and diseases, mental, physical, and moral, may remain latent for many years. This delayed and unexpected unfolding of latent powers often causes us to attribute more to our educational efforts than is proper. We are often paralyzed by the sudden turn that life takes. Wagner was no less a product of heredity than Mozart, even if his genius did not develop until awakened by a fever at seventeen.

A Chart to suggest Ideas of Individual Variations. Not only do individuals vary in the number and combination of qualities they inherit, but there are as many different degrees of potentiality in each quality or power as there are individuals. Fear is an inherited instinct; but, all things else being equal, can you imagine any two individuals coming into the world with potentialities *to fear* exactly alike? The same is true of all potentialities man possesses.

CHART SHOWING INDIVIDUAL VARIATIONS

INDIVIDUALS	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
Selfishness	60	80	50	40	35	45
Fear	45	20	85	25	30	70
Anger	50	65	25	50	20	45
Tender emotions	70	40	65	55	80	55
Sex impulse	65	70	45	60	65	70
Curiosity	60	65	40	65	80	25
Imitableness	70	40	75	70	20	10
Initiativeness	40	70	20	20	75	90
Tendency to seriousness or to melancholy	50	40	70	70	90	40

Let the numbers one to six inclusive stand for any six children. To the left is a list of several potentialities which the average child has in some degree on entering the world. These are only suggestive. The list might be made many times larger. Now suppose we were able to measure the greatest amount of selfishness, of fear, of imitation, of melancholy, that any individual could possibly possess, and in each case we let 100 represent that maximum. Then in all these qualities all other children will stand some place below 100, but probably no two at the same figure. Hence the figures I have placed in these columns opposite each potentiality are *hypothetical suppositions* that each child has such a per cent of the maximum possibility of fear, of imitation, etc. Notice that some of the potentialities are antagonistic; for example, fear and initiative are not good friends.

Some one may claim that no six children differ as widely as these are made to differ. I do not know about that. They may vary less and they may vary more. *This is intended to suggest an idea.* Not only is this general idea true, but I do not doubt that, were we able to measure the potential power of children's imagination, memory, reason, æsthetic appreciation, etc., we would be able to form a table similar to this.

The numbers in heavy type indicate that that potentiality is probably strong enough to dominate all others that may stand in its way. Give a man a powerful impulse of *selfishness* and *initiative* and all opposing potentialities will be overcome. The melancholy disposition of Buddha left its stamp upon his whole life and dominated his interpretation of everything. The insatiable desire for knowledge that dominated Socrates would give place to nothing

else. By a careful study of the great geniuses we might be able to make a chart approximately representing the power of the dominant potentialities that each brought into the world, and that directed the manifestation of their activities.

Relation of Environment to Heredity. That heredity and environment determine the destiny of every organism born into the world is now no longer a question for dispute. But the most confused and entangled question of modern times has arisen as to the relative importance and power of these two factors. Perfectly absurd things have been said and circulated in books as knowledge. I have no hope of clearing the atmosphere. I shall only make suggestions.

I believe Dr. Saleeby has the correct idea and I shall follow him. Heredity is not a reality, not an actuality, to which environment adds something. It is not a question of addition, but of multiplication. Environment is the multiplier; heredity is the multiplicand. But the multiplier must be of a denomination corresponding to the multiplicand. Neither heredity nor environment furnishes any actualities. They are growths out of conditions. How absurd to think of environment furnishing fear, imitation, love, hate, etc. Whence do they come? Do the clouds, the mountains, thunder and lightning, add melancholy, fear, admiration, wonder, or intelligence to the individual? Have the physical elements these things to give? Or do they simply furnish an opportunity for the manifestation of a potentiality? But some say they are acquired from other people. Can you loan an idea or a feeling? Or whence did these people get these things to loan? From their ancestry? And then whence?

Under certain circumstances the Socratic potentialities of intelligence and morality would never have become actualities. If the multiplier is zero the result is zero. But as it was, practically the same multiplier was applied to thousands of the Athenians, but the results were according to the size of the multiplicand. No matter how large either factor is, if one is zero the result is zero. Environment must have material on which to build, and the results are according to the quantity and quality of the material. If Eton produced Wellington, why does it not now produce thousands like him? There is abundance of material but it is not the right material. "The truth is, Eton failed to destroy him."

Education must build on what Nature furnishes. Education is vitally important and no one should underestimate its value. But I protest against the old view that it is the business of education to remedy the defects of Nature, to make all children alike where they are unlike, to force subjects on them and to build up in each case an artificial personality that has no relation to the true self. *Nature made them unlike.* Their inherent individuality is sacred. When an individual does not abide by the habits, customs, and traditions of his age, he is looked upon as peculiar or insane. Fortunately he is usually not possessed of a psychological mania to make everybody else like himself, as weaker minds usually are. However, the molding process forced upon children of natural, inherent powers is external, superficial, and its results die with the individual. Personality is the manifestation of inherent power that abides eternally.

A recent writer sums up the matter in these strong statements: "For the more primitive and fundamental traits in human nature, such as energy, capability, persistence, leadership, sympathy, and nobility, the whole world affords the stimulus, a stimulus that is present well-nigh everywhere. If a man's original nature will not respond to the need of these qualities and the rewards always ready for them, it is vain to expect much from the paltry exercises of the schoolroom. The channels in which human energy shall proceed, the specific intellectual and moral activities that shall profit by human capacities, are less determined by inborn traits. . . . We cannot create intellect, but we can prevent such a lamentable waste of it as was caused by scholasticism. . . . The one thing that educational theorists of to-day seem to place as the foremost duty of the schools — the development of powers and capacities — is the one thing that the schools or any other educational forces can do least."

It is a foolish waste of life and energy to attempt to create capacities and interests where nature has fortified the individual against them. In the main, education is, as Plato characterized it, a process of weeding out and of selection more than of creation.

CHAPTER XI

THE THINKING PROCESS AND ITS DEVELOPMENT

Degree of Thinking. How shall I give a definite meaning to this word *thinking*? Is it desirable even if I could strictly limit its meaning? It is used by different individuals, and even by the same individual in a great variety of meanings. With many it is used as synonymous with consciousness, especially with any form of introspection approaching *self-consciousness*. We speak of general observation, common daydreaming, efforts to remember, playing with imaginary images, as *thinking*. Much of our thinking is only a train of images, one after another, but it must be admitted that through these we obtain rational results. They even lead to rational action and conduct. The clouds now hovering on Pikes Peak may suggest many different trains of images to my mind and many ultimate results are possible. This may lead to dreaming over scenes gone by, or to practical reflections in connection with this work. Only observe the *stream of thought* for a few moments and you will realize that we are moved from one point to another and comprehend not how.

Daily and hourly do we *infer* conclusions, often of great importance, without being conscious of going through any logical reasoning process. Such inferences are often more accurate, and are often obtained when conscious logical reasoning would fail to give satisfactory results.

1 *Intuitive reasoning* is the best term we can apply to these practical inferences, obtained we scarcely know how. It is nearest akin to instinct, and is often joined to instinct in the higher animals and manifested in a very acute form. It is keenest in connection with one's personal interests. Danger from others is often inferred with great accuracy without any logical basis. It is a hybrid between instinct and Kantian reason, which is the climax of the consciously logical process. This intuitive power is reason in which one's individual interest fertilizes the intellect to an enormous degree. Such intellectual manifestations as *sagacity* in animals, the *cunning and shrewdness* of savages, the unexpected power of *self-protection* in emergencies, the so-called *moral or immoral intuitions*—these are some of the forms of *intuitive reasoning, which is the primordial form of all reasoning*. A study of primitive life will reveal how rarely savages reason concerning things that do not directly and immediately affect their welfare. They have little to do with the roundabout, indirect, logical ways of reaching conclusions.

2. *Short-circuited logic* is a form of reason differing from *intuitive reason* chiefly in its origin. They bear the same relation to each other that reflex action does to well-established habits. In the development of the latter the process was once vividly in consciousness, but gradually dropped out. Such reasoning abides in nearly all perceptions. We once went through the logical process, but now we have forgotten it; we short-circuit the process and go direct to the conclusion without any consciousness of what the logicians call a *middle term*. The roar of the river that I have not yet seen immediately suggests

the conclusion of a waterfall; a cry, the thought of some one drowning; a mother's tears, that it is her child who is drowning. In these and ten thousand other inferences or conclusions there is no reasoning process in the strict sense of the term. *Reason in the logical and general psychological sense is applicable mainly to new conditions and to analysis.*

3. *We now have two alternatives.* Either we must give a perfectly arbitrary definition to *thinking*, or we must extend it indefinitely down the scale until it fades away into pure habit, instinct, and reflex action, in which consciousness is present, but plays no part in their production. I believe that so long as our chief end in such a study as this is not fine distinctions and definitions, but *interest, soul power, and attitude of mind*, we will do well to accept the second alternative.

A vast amount of time is spent in making word distinctions where there is never a *felt* difference. Dr. Mercier gives an amusing example from a writer on psychology. "The rat," says this writer, "occupies a very low position in the scale of animal intelligence. It possesses great cunning begotten of centuries of ceaseless persecution at the hands of man, and this no doubt passes for intelligence among those who fail to discriminate between the two." This Mercier calls "a distinction without a difference."

We may conceive of the *process of thinking* as a development containing a great variety of stages and manifestations. I suggest that, for those who demand a limitation, thinking be applied to the entire process, and that reason in the strict sense be applied to the *conscious logical process* only. This is the limited sense in which Wundt uses the

term when he says, "Animals do not reason and few men do." But between this *conscious logical process* and the *short-circuited reason* of habit there are forms of dimly conscious and semiconscious logic. In the highest manifestations of genius we shall later see intuitive and short-circuited reason arriving at deep and fundamental principles.

Thought and Progress. If we use *thought* in its widest and best sense, it is almost synonymous with progress. Often individuals or a whole people may claim to be guided by the power of thought, when a careful psychological analysis shows habit and custom to be a powerful substitute for *thinking*, which triumphs over an army of logical contradictions. But thought in the higher sense is active and aggressive. It is ever seeking for possible contradictions, missing links, undiscovered laws, higher and better ways of doing things, new systems of adaptation to new conditions. *New conditions always involve new factors which the former reasoning could not take into account.* Society continually profits by the man of thought and discernment who thinks beyond his own needs. The progress of human knowledge has been a Herculean struggle. It is essentially a creative process. Even though a life is spent in giving to the world a single truth, revealing a single law or principle, such becomes a creative cause out of which the wheels of time will grind many new forms of existence. When a great thinker is turned loose on the planet, then all things are in danger; the conflict is on, and modifications must follow. The history of this thought-conflict is the history of progress. Man is the creator of new worlds.

By this thought-power man won in the mighty and long conflict with the other animal creation, with extinct man, with the conservative *standstill* man. By it he evolved the high forms of art, literature, science, morals, civilization, and inventions. By the same power will man some day produce still higher and more perfect forms to take the place of these. Who has said the last word on art, literature, science? On the supposition that we discover no laws now unknown, I may say that it will be impossible to run a train five hundred miles an hour. But who knows what is yet to be discovered? Reason looketh not backward, but ever marcheth on toward the *superman*.

Causes of Inaccurate Reasoning. Many *reason* poorly, if at all; few *reason* well. Let us briefly *reason* why. Shall we do as we once did — call formal logic to our aid, hoping to cure this widespread disease?

1. *Heredity is a great factor in determining this difference among men.* All men are not born free and equal. Let us accept this great biological truth and make the most of it. Furthermore, instinctive interest and æsthetic taste largely determine the line along which the giant minds of earth operate. The misguided efforts of parents and educators could not thwart the mind of Schiller or Goethe from its destined line of operation. The powers of poverty and persecution could not compel Wagner to other lines of activity; the powers of heredity made him a musician and stimulated thought in that line. Again, the majority of men have no ambition to reason beyond their own interests. They have no world view. They lack both the thirst of ambition and the desire for fame to spur them on.

2. *Absence of adequate material is a source of incorrect conclusions.* Even from the pen of the great minds of earth a volume of such errors could be collected. Because of the blind allegiance given to him, the error of Aristotle concerning spots on the sun has become famous. In early life every available opportunity should be used to store the mind with a great variety of vivid images and extensive concepts. Observations of all kinds in Nature's out-of-doors are very essential. I would emphasize again that thinking is present in all observations and comparisons from the beginning. No child can describe an object without comparing and *thinking* in some of the forms we have presented. Without thought no child can construct an imaginary playhouse.

Later in life this lack of material is often lamentably wanting in the specific line of the individual's thought activity. The boast of Pestalozzi that he had not read a book in thirty years accounts for many of his limited and erroneous conclusions. I know men too obstinate to inform themselves as to what others have thought in *their* line of thinking. But it is psychologically interesting to note that such a condition of mind is usually destructive, not constructive and progressive.

3. *Habit and apperception* have already been shown to be powerful factors in shaping, directing, and interpreting the reasoning process. Little more need be said here. Under the power of habit and apperception the boldest contradictions are winked at and ignored. At the same time the victims of this power will conduct themselves like madmen concerning the inconsistencies and contradictions of others.

4. *Strong emotion interferes with accurate judgment.* Tolerance is the glory of *empiricism* and *experimentation*; intolerance, the shame of *idealism* and *belief*. Belief is always both emotional and intellectual. Doubt opens the gateway of the reasoning process; belief closes it. All conclusions are in a manner beliefs, but they differ in the way they are held, depending largely upon the emotional element entering into them. Some beliefs are accompanied by the mental reservation that, with all the evidence now at hand, such and such must be true; but this implies at least the possibility that to-morrow may present new conditions and new facts. Until then I am content. Happy, tolerant, and charitable is the man who has reached such a mental height in all his beliefs. On the contrary, some individuals are certain that the future cannot and never will reveal any conditions touching their cherished beliefs. Emotional interest forbids the thought of any such possibility. The strongest power of apperception is manifested under the emotions of love, religion, and politics.

Some very interesting psychological phenomena are revealed in the transitional stages of belief. For example, some new ideas are making headway on the old. The firm believer in the old may, in all apparent sincerity, proclaim the new ideas crazy and nonsensical, and declare that truth cannot be touched by such groundless ideas. Yet he shows all signs of uneasiness and even calls to arms his "warriors." Has he *short-circuited* a conclusion which his logic will not concede?

5. *Defective education and training is the cause of incorrect thinking.* Not only should there be abundance of material for thinking, but the child should be given

freedom in the use of it, being guided only by suggestions. All efforts to compel the child to cast his thoughts in a given mold, to cause him to rely on authority, to prohibit doubt, or to discredit originality even though it be wrong, build a dike in front of spontaneity and make it pretty certain that the average individual will be a slave to custom and convention the remainder of his days.

All judgments are the result of the application of standards of measurement. If I lie on my back and judge the distance to the stars; or if I estimate the volume of water pouring over the falls, by the sound; or if I pronounce judgment on the moral character of the person who has just passed, by his looks, or on the sincerity of the President, by some act, it is all done by standards of measurement which are largely the product of education. Such judgments will vary in their degree of accuracy, largely according to our previous habits and education.

The continual wrangling which we hear among men, accusing each other of inability to think, is in reality due not so much to any failure in the *process* of thinking, as to the fact that such men have different standards of comparison. What is more, this standard, whether it be applied to sensuous, economic, political, moral, or religious judgments, is not the same for the boy as for the girl; for the child as for the adolescent; for the youth as for the adult; for the practical man as for the clergyman; for the poet as for the scientist. It varies at different periods of life; for people of different temperaments; for different periods of the world's history. In forming such standards the importance of wide experience and contact with people cannot be overestimated.

Proper Positive Education of the Thinking Process is the Supreme Demand in All Education. To this end a few positive suggestions may not be out of place.

1. Never let the child lose an opportunity to widen his field of thinking.

2. Have the child acquire the habit of noting likenesses and differences and of applying a classification that is more than words. Classifications and distinctions ready-made for us cripple thinking.

3. More time must be given the child to mature his thoughts. The teacher who is always thinking for her children because they do not think fast enough should have staring her in the face Rousseau's paradox: "The whole art of education is the art of losing time!"

4. Reasoning by analogy is sometimes dangerous, but it is also necessary and profitable. Primitive peoples reasoned by analogy first. We know nothing about the psychology of animals save by analogy. The same is true in mere observation of others. I saw a woman receive a telegram, wring her hands, and weep. How did I know she was sad? History is full of reasoning by analogy. In "The Republic" Plato uses it with powerful effect. Students should learn to search for analogies, and to criticize those that are not valid.

5. The difference between coincidence and cause and effect should be taught. For example, it is often argued that the development of civilization, art, and science is due to the growth of Christianity. It could also be argued that the growth of intelligence, art, and science made possible the conception and development of a higher religion; or it may be argued that they are mutually helpful and continually act and react on each other.

6. Good fiction is a powerful stimulus to thinking. This is especially true if students are led to discover the symbolic nature of the great pieces of literature. For example, in Goethe's great work, *Faust* may be conceived as symbolic of all humanity; *Mephistopheles*, or the devil, as all evil tendencies in man; while *Wagner* is a splendid symbol of all machine-, book-made men. In Tolstoi's "War and Peace," *Napoleon* is the embodiment of ambition; the whole family of *Balkonskys* represent a simple, unspoiled civilization; while the *Rostovs* represent a spoiled and decaying civilization. Fiction properly taught is a thought tonic sure to produce results.

The Formation and Development of Concepts. The formal steps usually given are: (1) presentation of material; (2) comparison; (3) abstraction; (4) generalization; and (5) naming. These steps need some explanation. Observe a child forming the concept *dog*. Let us suppose that the first presentation of material is a small white dog. The child observes its long hair, its color, its size, hears it bark, etc. Whether the child be given the name *dog* or not, he has just one image, and, should he never see another dog, the word *dog* would ever after stand for that image and that alone. (If later the child sees a small *black dog*, what will be the mental process?) If he notes by comparison with its mental image that all the other qualities of dog are present, he will now *ignore* or *abstract* the quality *color*, classify the object with the memory image, and name it *dog*. The child is not conscious of going through these processes, but the same thing will take place so long as *dogs* with any new quality are presented. Many different

colors, sizes, length of hair, ears, general shape, behavior, kindness, barking, etc., must from time to time be *ignored* or *abstracted* in classifying the object as a dog.

When will the possibility of enlarging this concept *dog* cease? Only when it is no longer possible to see a dog having any quality different from those already presented. So we may say that the development of concepts is practically never completed. No one ever saw a dog so large that another larger might not be found or produced. What is true of this concept *dog* is true of every concept ever formed, be it a concept of apple, man, mountain, numbers, lying, goodness, virtue, evil, space, time, God, or the devil. *And so long as there is any material possible to be presented to the growing mind, these concepts are never absolutely fixed.* This is another way of proclaiming the important truth that, for the individual, words have no fixed meanings. Of necessity the thinking man's idea of God must be different from that of the man who has long since ceased to think in the sense of enlarging his concepts. The thief's idea of stealing must be different from that of the people. A thousand great pieces of literature in a thousand different ways proclaim these great facts; yet most people plod on, thinking that concepts are fixed entities which may be realized once for all by learning definitions.

The inadequacy of the so-called laws of thought is revealed by the fact that words have no fixed meaning. Take, as an example, the Law of the Excluded Middle — *everything must either be or not be*. This sounds well, but it is only formal truth. Psychologically it is not true. It assumes that there are definite lines of demarcation between

concepts. It assumes that content abides in words and classification and that words have *fixed meanings*. Under this law each man is either good or not-good. But good is only a comparative term without a fixed meaning. From some aspects the man may be good, from others bad. Compared with the present man he may be not-good; compared with savages he may be good. The paper on which I write may be not-good for the use to which I am putting it, but for kindling a fire I fancy it would be admirable. All formal logic is, just as Kant demonstrated, what its name implies — *without a content*.

Genius, the Star of Hope. No man can draw a line separating *mediocrity* from *genius*. They are simply the two extremes of an infinite number and variety of intellectual gradations. For practical purposes we designate the individual whose achievements in any line stand far above the average of mankind, a genius. What is *above* the average and *how far* above are in a measure determined by popular sentiment. When a great genius like Nietzsche attacks our institutions he must be much farther *above* the average than when an inventor gives us a useful necessity of life, like the printing press. In the former case he must overcome habit, custom, and strong social and religious prejudice.

There are different orders of genius — financial genius, military genius, inventive genius, scientific genius, moral genius, artistic and literary genius. Each of these has its stars of varying magnitudes. Comparison here is folly. When a boy I heard two explanations of genius. We were told that *attention* makes the genius and creates his *intense*

interest. But the reverse is the truth. It is mainly inherent and intense interest that produces keen attention to the necessary details and relations unobserved by others. Again, we were told that the secret of genius is hard work. But whence comes that endowment of determination and endurance so rare among men?

The literary, artistic, political, or moral genius must burst the bonds of custom and tradition, must rise above the social forces, and create something beyond his age. The psychical processes are usually highly intuitive and often semiconscious. I know of no way by which the race can make substantial advancement to higher standards along these lines save by the free and untrammelled outbursts of such rare souls. The genius that creates must also destroy. "In the world of ideals there is no stability." But even the good and the just of all ages would crucify those that invent new standards, especially if the people seem inclined to accept them. Certainly much dross will be mixed with the little quantity of gold. Shall we trust the human heart? What gloomy pessimism hangs over us if we do not!

With all due respect to the shades of the mighty dead, whether Greek or barbarian, I will build my faith on the young uncorrupted souls of the children of this and succeeding generations, if only we will learn to permit their souls to unfold in whatever original ways Nature dictates, and with as much freedom as the children who once sat by "the deep-sounding sea"; and if only we will cease to feel that they must think, feel, believe, and act as we do in order to save them from destruction and from intellectual bankruptcy.

To those who teach the young as if we to-day were in possession of all the laws of art, æsthetics, literature, morals, etc., and that now we need only to apply them, Goethe gives a just rebuke. He says: "Oh my friend, why is it that the torrent of genius so seldom bursts forth, so seldom rolls in full-flowing stream, overwhelming your astounded soul? Because on either side of this stream cold and respectable persons have taken up their abodes, and, forsooth, their summer houses and tulip beds would suffer from the torrent; therefore they dig trenches and raise embankments betimes, in order to avert the impending danger."

Not only must the true genius be unhampered by outside conditions, but he must also be free from his past self. Well does Nietzsche say of the creator, "Thou must be ready to burn thyself in thine own flame."

Language and Thought-Discipline. Ever since the days of Platonic dialectics there has existed a great temptation to identify *words* and *things*, *language* and *thought*; that is, the absolute meaning of the word is the same as its abstract reality. Many have considered thought impossible without language. Much of our past education, especially language study, assumed, half unconsciously of course, that to acquire skill in language was to secure *thought-discipline*.

Although language study is made the chief business of our schools, thought-discipline is so defective that some have declared that language perverts and clouds thought. What are the essential facts?

1. Language of whatever kind is only a tool of thought. That thought cannot exist without language is absolutely without foundation unless we include in language every

conceivable sign. Even animals may possess some signs, incomprehensible to us, that stand for general notions to them. But when the educator thinks of language he does not include these gestures, pictures, symbols, movements, bodily states, etc. In the chapter on Evolution this broad development of language is briefly suggested. Language does not give origin to the states of soul that are symbolized in such a variety of ways, but *these symbols fix meanings and provide the way for communication of like states of soul.*

2. With the development of intelligence has gone a refinement in the use of signs to fix meanings. Natural objects were probably the first signs for intellectual meanings. Just as clouds may be the sign of rain to savages who have no name for such a phenomenon, so natural objects are doubtless extensively used by children and animals to designate certain accompanying phenomena. As Professor Dewey points out, these signs have several limitations. Artificial signs of sounds, gestures, and movements make the meaning more definite and give more flexibility in their application. The higher we progress in these signs the more useful they are for organizing ideas and making meanings more distinct. As these signs become more adapted to transfer meaning they also give greater fixity to that content. The detachment of a sign puts limits on the meaning.

3. Speech forms are the highest and most perfected signs or tools of the mind. The next stage is their organization into sentences. Some one has well said that deficiency in intelligence is due not only to the need of ideas, but *essentially to deficiency in organization of ideas.* The

meaning of things involves their relations to other things. Hence teaching mere things, whether of objects or mere words, has little value as *thought-discipline*. Such may positively be a damage. Symbols are more dangerous than things. If they are once detached from things or experiences, without having been first filled with a content from intercourse and contact with things, they are indeed as "sounding brass and a tinkling cymbal."

So language occupies a very unique place in human experience. If pursued as an end in itself, as is often the case through our whole course of education, it actually arrests thought-discipline and turns the mind from inner content to outer form. If space permitted, it would not be difficult to present abundance of proof. A glance at our miserable effort to teach mathematics is all that is necessary. On the other hand, without language and a constant growth and refinement of our native tongue there could be no accumulated intellectual powers. Fine *thought distinctions* must have some adequate symbols to preserve them and bring them into proper relations to other symbols.

4. *Thought-discipline* encounters a serious difficulty in its effort to pass beyond the common distinctions, especially in dealing with abstract symbols. So keenly did Dr. Brinton feel this difficulty that he names *Language as one of the five factors in the way of progress*. Suppose that by keen intellectual insight and wide *organized thinking* an individual sees differentiations in thought not made before, or puts a much wider meaning into old terms; if he continues the use of the old symbols, he will be thinking one thing and, to his hearers, saying another. If he uses new or *unusual* symbols, he is sure to be only partially

understood. In dealing with abstractions the intellectual wars among men originate chiefly in this dilemma. Thus language in a measure compels uniformity of thought and holds back the individual who would be on the heights. Every powerful mind realizes these limitations. *The struggle of creative art is a struggle to overcome these limitations and more fully to express the soul in higher symbols.* Nothing gives poise and serenity of soul like a consciousness of power to transcend these limitations. This alone is true freedom and results from *trained thought-power*.

5. *Conformity to established opinions is often readily accepted as thought-discipline.* The thinking of the Middle Ages consisted in accepting these opinions, and then, by syllogistic reasoning and play with empty symbols, maintaining them. Scientific reasoning is everywhere opposed by these established opinions. Plato says opinion is three steps removed from truth. We can do no better than to quote Professor Dewey's description of this public thinking: "Certain men or classes of men come to be the accepted guardians and transmitters — instructors — of established doctrines. To question the beliefs is to question their authority; to accept the beliefs is evidence of loyalty to the powers that be, a proof of good citizenship. Passivity, docility, acquiescence, come to be primal intellectual virtues. Facts and events presenting novelty and variety are slighted, or are sheared down till they fit into the Procrustean bed of habitual belief. Inquiry and doubt are silenced by citation of ancient laws or a multitude of miscellaneous and unsifted cases. This attitude of mind generates dislike of change, and the resulting aversion to novelty is fatal to progress. What will not fit into the

established canons is outlawed ; men who make new discoveries are objects of suspicion and even of persecution. Beliefs that perhaps originally were the products of fairly extensive and careful observation are stereotyped into fixed traditions and semi-sacred dogmas accepted simply upon authority, and are mixed with fantastic conceptions that happen to have won the acceptance of authorities.”

6. The positive and legitimate use of language as a powerful aid in developing thinking power must be duly recognized by every system of education. The foregoing defects are mostly the results of that misconception by which the order of thought and language is exactly reversed. To believe in words is one thing and to use words to differentiate and to express ideas is a quite different thing. Many abstractions of mathematics, science, and philosophy would be impossible without adequate symbols, and without the use of other words to limit and to approximate a definition. All definitions are only approximations, nevertheless they are necessary to the advancement and refinement of thinking. Reading the works of such keen thinkers as Nietzsche, filled with fine distinctions and possible double meanings, must have a tonic effect on any active mind. *Appropriate word symbols applied at the proper time under the proper conditions are powers in provoking thought, but words without thought are dangerous.*

CHAPTER XII

SUGGESTION AND MENTAL HEALING

Few subjects are of more practical and public interest than the ones we are now to consider. Indeed, taken in their largest aspects, I doubt if there are any other phases of psychology so important for the general public. But would it be possible to find another subject concerning which there is such a diversity and confusion of opinions? These opinions range all the way from pure hard-headed skepticism concerning well-established facts, to a faith and belief that disregards law and common sense. It is a field in which people are inclined to believe either too much or not enough. Some entirely deny the scientific facts of hypnotism, and utterly ignore the daily manifestations of suggestion. Others accept, without questioning, all the miraculous reports about hypnotism and mental healing. I recently received a letter from a college graduate seriously asking how much faith she should put in a woman now established in Denver and claiming to be able to reduce "fat" by mail and without drugs. My reply was that her only hope would be in the worry she might have over the loss of her foolishly wasted money.

This condition of the public mind is due to several causes. In the first place the field is not occupied by scientific investigators only, but quacks, fakers, and charlatans parade the streets in robes that modesty forbids

science to wear. In this manner the unscientific masquerade as the scientific. Again, the entanglement of these subjects with old beliefs and religions has much to do with these extreme views. We should also observe that the scientific development has been very rapid and that new discoveries are continually being announced. I shall now attempt a brief statement of what I believe will be accepted by any well-trained observer, and what already is generally accepted by science. In a work of this kind I will have nothing to do with the extreme views. I am also confident that the limits now accepted will soon need to be modified.

Degrees of Suggestibility. Not only do different individuals differ in their susceptibility to suggestion, but the same individual varies under different conditions. There are many degrees of suggestibility, ranging from the lowest to the extreme phenomena in thoroughly hypnotized subjects. For convenience I shall roughly mark off four fields of suggestion.

1. In ordinary waking life every one is amenable to suggestion in some degree. The examples are legion, and may be verified a thousand times under the simplest conditions. Suggestibility is the power behind imitation, in both its conscious and unconscious forms. *Suggestibility is the tendency to carry into effect ideas and images received from others, without reflection on the relations and results.* Such ideas and images may be unconsciously received and acted upon. The whole great field of unconscious imitation belongs here. The best methods of training children rely most on well-directed suggestion. Character and conduct are largely results of suggestion.

Children are more amenable to direct suggestion than adults, who have learned by experience to be on their guard. But even adults are open to thousands of suggestions, especially if they come in indirect ways. Daily do we declare that *we* have made up our mind or decided to do so and so, when in reality it was perhaps the shrewd suggestions of others, dropped when the "iron was hot," that decided all. A student was once trying to decide whether she should go home for a short vacation. She had practically decided not to go. After the little group had talked and jested for some time, an amusing case of homesickness was intentionally related, but without reference to the decision in hand. The young lady left, but some hours later returned with a fixed determination to go home. If we want to see the suggestibility of children manifested in adults, observe an audience in the hands of a master magician.

Some years ago Dr. Small performed a few valuable experiments on a large number of Boston school children in the grades and high school. He told them he was going to spray a strong odor in the room, and asked each one to write the name of the odor detected. An enormous number of different kinds of odors were given. The total experiments showed that over sixty per cent yielded to the suggestion. *He had sprayed pure distilled water.* Various other tests gave like results. We can get similar results any morning by suggesting that the milk has been watered, that the meat is spoiled. Violent sickness has been known to result from the suggestion that some article of food contained poison. These are a few examples of suggestibility in ordinary life. Any schoolboy can multiply them either by observation or experimentation.

2. The social, political, riotous mob spirit is due primarily to the suggestibility of crowds. Careful analysis will reveal several important differences between individual and collective suggestion. All writers on social psychology now declare increased suggestibility a characteristic of the crowd. The critical faculty is greatly weakened. The exciting cause absorbs all attention. Le Bon says, "The impossible does not exist for a crowd." This he thinks accounts for the creation and propagation of the most improbable legends and stories. Affirmation, repetition, and contagion are the needed factors in exciting the social organism. More elaborate treatment of this topic will be found in the chapter on *Social Psychology*.

3. We are indebted to Dr. Sidis for the third general form of suggestion. Suggestibility is intensified in the passive, semiwaking, or "subwaking" state. Dr. Sidis distinguishes this form of suggestion from hypnotism, and calls it *Hypnoidization*. Name it as we will, it exists and must be taken into account. The early idea that hypnotic suggestion has no effect while the subject is yet conscious of his surroundings has long since been proved to be false. Several physicians who once used hypnotism now maintain that the hypnotic sleep is unnecessary, holding that suggestion is equally effective for medical purposes without the sleep stage. Dr. Bramwell is one of the most noted examples. For many years he has had remarkable success as a hypnotist. He now uses suggestion, without putting the patient to sleep; it corresponds to the subwaking suggestions we are considering. This state is the border land between waking and sleeping. The essential conditions are only two — *relaxation or passivity, and monotony of some kind*.

4. *Hypnotic Suggestion.* Just as natural sleep is preceded by gradual loss of consciousness, which may or may not pass into sound sleep, so the hypnotic sleep is preceded by the subwaking state, which may or may not, according to conditions, pass into the hypnotic sleep. In the hypnotic sleep the power of suggestion, which may be traced in its development from the imitation of animals up to this point, reaches its maximum.

This preliminary classification has been made to widen our ideas about the extent and power of suggestion. For myself I can see no absolute distinction between these degrees of suggestibility. I believe suggestibility is the best general term to apply to this whole class of phenomena. Then for practical purposes we should differentiate by recognizing *waking suggestion*, *subwaking suggestion*, *crowd suggestion*, and *hypnotic suggestion*. Bernheim has abandoned the use of the term *hypnotism*, and recognizes instead degrees of suggestibility.

History of Hypnotic Phenomena. Hypnotism was not unknown to the ancients, and has, doubtless, unconsciously played no small part in producing many of the otherwise inexplicable phenomena in the development of man. Under its modern form it began with Mesmer and was known as *mesmerism*. The phenomena which he described have been common to human history. Mesmer and his first followers believed that they produced the phenomena by applying physical means, such as passes, strained gazing at objects, etc. A trancelike state followed. A force or fluid was supposed to pass from the agent to the subject. This was the explanation. Its chief practical application and claim

for recognition was the healing of diseases. It is needless to dwell on the blind opposition excited in the medical world. You may turn your imagination loose; it will do no injustice.

About 1831, Dr. Elliotson, a brilliant scholar and physician, began to investigate mesmerism. He was then a professor in University College, London. His experiments were very successful. This aroused bitter opposition, and he was ordered to cease mesmerizing his patients. This he did, but immediately resigned his position. We owe much to the determined scholarly efforts of this man, whose faith was all in the future. No persecution could deter him from the path of progress.

Another talented college graduate, Dr. Esdaile, became very efficient in mesmerism. In 1846 he was given charge of a small mesmeric hospital in Calcutta. At the close of the year he reported one hundred thirty-three painless surgical operations, performed under what we now call hypnotism. But in spite of his success, the favorable report of the official visitors, and a petition signed by three hundred natives, the hospital was closed. Another was immediately opened by voluntary subscription. Before he left India he reported thousands of simple operations and some three hundred severe ones.

Braid first lifted the veil of mystery from mesmerism and demonstrated that the phenomena are produced subjectively. He did away with the fluid theory, showed that physical appliances were not the direct cause, and renamed the process *hypnotism*. He proposed to teach any intelligent medical man to do what he had done. Such training is now given in many medical schools.

How Increased Suggestibility, called Hypnosis, is produced. There are almost as many different methods as there are individuals practicing the art, but all have certain characteristics in common. We have already seen that the gateway to the hypnotic state is through the subwaking state. This is secured chiefly by relaxation and abstraction, or attention to some monotonous disturbance. *Attention centered on some one thing is the primary element.*

1. Efforts to administer suggestion should be preceded by a statement to the subject that all people yield to suggestion in some degree; that he will not experience any more shocks or unpleasant sensations than he does in going to sleep; that no harm will come to him now or afterwards; that to be hypnotized is not a proof of weakness; that he may not even lose consciousness; that he must not be discouraged even by absolute failure, as many subjects must be tried many times; that the suggestions will be given with an exaggerated emphasis; that to struggle and resist is to fail in the undertaking. This being done, he may be seated in a comfortable chair, or, better, he may lie down on a couch. He should then center his entire attention upon sleep. This is facilitated by having him fix his eyes upon some object held from twelve to eighteen inches in front of him, or by having him look you squarely in the eye. The monotony is kept up by the constant suggestions of the operator about sleep. He is instructed to close his eyes when the eyelids feel heavy. Slight pressure on the eyeballs and forehead, with the statement "you have now gone to sleep," will help. Tell him he is asleep but not unconscious; that he will not move a muscle until bidden to do so. The subject is now ready to receive suggestions.

2. Drugs and narcotics are sometimes used to help in the production of the hypnotic sleep. Dr. Herrero, professor of Clinical Medicine at Valladolid, selected six subjects whom he had failed to hypnotize. By administering a small amount of chloroform he secured unexpected results. Bernheim has found doses of chloral helpful in inducing sleep. Some authorities claim to have changed natural sleep into hypnotic sleep.

Phenomena of Hypnotic Suggestion. 1. Having secured a hypnotic sleep, what follows? There are no phenomena common to all subjects, so what is suggested *may*, but does not of necessity, occur. In some subjects the sleep may be so deep that by suggestion the muscles become contracted and remain where placed. This is known as *catalepsy*. Bernheim believes that all persons who pass the first stage can be put into the cataleptic condition. *In some degree muscular power can be increased by suggestion.* The muscles may be paralyzed by suggestion singly as well as in groups. All experimenters agree that the normal power of all the senses may be somewhat increased by hypnotic suggestion. Hunger and thirst may be produced by such suggestions. Changes of personality and hallucinations of various kinds may be produced by hypnotic suggestion. Insensibility to pain or touch may be produced in various parts of the body.

To distinguish *the active hypnotic subject* from the waking individual by general appearance is difficult. He is conscious and alert, and, from general appearances, *wide-awake*. Still he is obedient to suggestions of the operator. With the exaggerated accounts of what has been and what

may be done by subjects in hypnosis I have nothing to do. I positively know that practice, cultivated strength, artistic skill, and deception account for most of the things seen in public exhibitions.

2. *Posthypnotic suggestion* has deepened our psychological and even moral interest in the study of suggestion. Usually everything ends the minute the individual is told to "wake up." It was first found that some of the conditions could be carried over to the waking state, if such suggestions were given previous to waking up. For example, a patient has a boil on his hand lanced. By suggestion the part is made insensible to pain. By posthypnotic suggestion Dr. Bramwell says he continues this insensibility to pain after waking.

The large application of the posthypnotic suggestion now points toward moral and physical health conditions. As we shall later see, it is an important factor in mental healing. For several years there has been operated in Paris a school for curing children of many moral and physical defects, largely by the influence of posthypnotic suggestion. So thoroughly established are the results of this school that the State is likely to take charge and support it. Its value has been thoroughly tested in this country. In the medical profession we have a large literature on suggestive therapeutics. There can be no doubt that the drink habit, cigarette habit, sexual habits, nervousness, and a large number of disorders have been successfully treated in this manner.

Popular Errors concerning Hypnotic Suggestion. 1. I have found people so conceited about their superiority as to believe that only weak-minded persons can be hypnotized.

Others do not have such exalted ideas of themselves, but would like to keep their supposed weakness a secret. So far is all this from the truth, that one authority has said that small children, savages, and idiots are the difficult classes to hypnotize. Intelligent, sensible people are the best subjects. We must note, however, that this is quite in contrast to *crowd-suggestion*.

2. The number that may be hypnotized is immensely larger than is generally supposed, but the fact that many subjects never lose consciousness has led to widely different estimates, especially by those who only theorize. Fifteen professionalists' reports in 1892 showed 8705 cases attempted with only 519 failures, about six per cent. The most conservative claims are that ninety to ninety-five per cent, irrespective of sex, age, or health, are susceptible to the influence of hypnotic suggestion. The supposed immune are often hypnotized after many trials or under changed conditions.

3. The operator does not possess any rare supernatural gift any more than a surgeon does. Braid's offer, made long ago, to teach any intelligent physician the art, is safer to-day than ever before. It requires keen psychological observation, attention to little things, patience, skill, faith in your ultimate success. I once saw a surgeon, at the urgent request of two other surgeons, consent to perform a serious operation on the brain. I then watched him walking up and down the corridors while the patient was being prepared. His air of confidence deeply impressed me. I thought of how skill and confidence react on each other.

4. The populace feel that great physical and moral wrong may come from hypnotism. Any physician has in his hands power for wrong far surpassing any possibility in

this art. Of course excess in anything will produce bad results, but that does not prove that moderation is bad. Dr. Bramwell says: "Although I am willing to admit that it is possible that harm may be done through the mismanagement of hypnotic cases, I have personally seen no evidence of this either in my own practice or that of others. Further, I have never seen even the slightest bad effects follow carefully conducted hypnotic experiments." It is also now emphatically stated that suggestions which offend the moral sensibility of a subject will be ignored.

5. No problem is more entangled than that of the *Will*. There is a general belief that yielding to suggestion weakens the will. What are we to understand by such a statement? Is it will in certain lines or will in general that is supposed to be affected? In a measure every influence of life weakens the will in some lines and strengthens it in others. May not the same law of suggestion be used for, as well as against, the individual? Is it not true that *will* may be strengthened by *waking suggestion*, such as may be obtained from the biographies of strong men, and also by *posthypnotic suggestion*? Endless is the confusion in regard to this word *will*. For years I have seen the statement, even by those who practice suggestion, *that no one can be hypnotized against his will*. But they certainly use *will* in a different sense from that of the general public. What we should say is, that no one can be hypnotized while he is consciously struggling not to be. A party of ten people had individually decided not to take a certain boat ride on a stormy lake. I laughed at them; said, "Yes, you will"; persuaded; and ere long six joined me. The conditions remained unchanged; I produced no argument. Did they do

this against their will? They gave their full consent, but my suggestions produced it. The wise physician is able to disarm his patients of a thousand objections.

Take more marked cases. Suppose I attempt to hypnotize a given individual; he says: "I will not permit it. I will leave the room." He starts toward the door; I cry out, "Wait a minute; stop there!" He stops; I engage him in conversation, and ere long he is a *willing* subject. Was he a subject against his will? Of course, you say, if he had not stopped it would not have occurred. But if I had not thundered out at him, he would not have stopped. It is difficult for the psychologist to arouse the public to a consciousness of these reciprocal relations in which we live, of the constant action and reaction of mental forces. Suppose one is so disarmed of his opposition, is it any more alarming than the daily process of changing the wills of men? Who is not directly or indirectly engaged in this game?

There are many other misconceptions about hypnotic suggestion which we cannot consider now. The causes of these phenomena we do not know. It is dangerous to accept the extreme statements concerning hypnotic phenomena until they are thoroughly proved.

Our Mental Life outside the Stream of Consciousness.

In my judgment the most important and most far-reaching discovery of modern psychology is that of the power of impulse, instinct, and feeling in determining human life and conduct. *The second is the modern revelation that the soul is larger than consciousness.* Just how this soul life outside the stream of consciousness is to be conceived, has greatly puzzled psychologists. *Unconscious mind,*

subconscious mind, subjective mind or soul, split-off consciousness, secondary personality, subliminal self, co-consciousness, superconsciousness, and secondary consciousness represent some of the efforts to name it. The last, *secondary consciousness*, is in my judgment the best; but even this is unsatisfactory. Every psychologist must confess that consciousness is but the surface layer of psychic life. The roots of the soul are deep down. There are often evidences of marked preparation before things are thrust into consciousness. As Wundt points out, these preparations are purposive. Can we then take refuge in pure *brain activity* as a satisfactory explanation of all that takes place outside of the stream of consciousness?

For the above statements we have abundance of proof from four rather distinct sources.

1. In normal life we are discovering the impossibility of explaining all mental phenomena without some hypothesis of this kind. Who has not labored long and hard to recall a name or a fact, when hours after abandoning the effort, and at an unexpected moment, it is thrust into consciousness with a certainty that startles one? I have had one vivid experience of being awakened in the night with the complete solution of a troublesome problem. Many others have recorded similar experiences. Often we are unable to shake off a certain phrase or song for weeks; such things are on our lips at the most unexpected times. I do not believe that we have any adequate physiological explanation. Many people possess and others develop a remarkable time-sense. Many awake at miscellaneous stated periods — not by habit, but against habit. It is difficult to conceive how our past learning, to say nothing of our

heredity of the past, could, as we know it does, help to determine every decision and action of life, on any other assumption save that some kind of soul life exists outside the stream of consciousness. Thousands of daily occurrences might be produced in support of this hypothesis, but the true generalized view is admirably presented by Professor Bergson. "What are we, in fact, what is *character*, if not the condensation of the history that we have lived from our birth — nay, even before our birth, since we bring with us prenatal dispositions? Doubtless we think with only a small part of our past, but it is with our entire past, including the original bent of our soul, that we desire, will, and act."

The best psychological students of geniuses are convinced that the highest inspirational works of these gifted souls are largely unconscious productions; that is to say, the chief preparation and labor were performed outside the *stream of consciousness*. Mozart carried a notebook in which to record his sudden and unexpected flights of inspirational music. Of course we are compelled to admit that this same fountain of the subconscious may produce both sweet and bitter water. Perhaps Mozart did not record the nonsense; others have done so.

2. The second proof of this secondary consciousness is found in hypnotic suggestion. The posthypnotic suggestions are the most direct and conclusive evidence we have. I cannot conceive how such phenomena can be explained in any other way. It is neither necessary to repeat cases given, nor to add others here; they can be found in any complete treatment of suggestion.

3. The medical world has accumulated a vast amount of material on *morbid psychology*. In this material is

found evidence of some power outside the personal stream of consciousness. Here we find automatic actions, varying from trivial things to theft. Sleepwalking, or somnambulism, involves activities which certainly demand considerable discrimination and which are undoubtedly purposive. Records of alternating and multiple personalities are many. I have no doubt that the automatic writing and whatever phenomena are genuine in spiritualistic mediums will some day be properly classified with the phenomena of this *secondary consciousness*.

4. Psychoanalysis has furnished evidence of some power outside of consciousness. Reference to this new line of development has already been made in connection with *association of ideas in dreams*. We must now view it in its larger aspects. Dr. Breuer of Vienna began this movement in 1880 in his practical efforts to cure hysteria; its elaboration belongs to Professor Freud. A hysterical patient is found to repeat rather automatically certain words and phrases. She is put into a slight hypnotic sleep and the words repeated over her until she makes the proper associations. In short, she finally connects this with her past experience and is cured. "Hysterical patients," says Freud, "suffer from reminiscences. They are *memory symbols* of forgotten events. These events may date back to childhood. There seems to be a mental condition tending to force the unpleasant and painful impressions and ideas down into the unconscious and to keep them there. This resistance must be met and overcome in psychoanalysis, and on this resistance is based the theory of the psychic processes of hystericals. The results seem to have justified such a hypothesis. In every case the condition of this

repression proved that a wish had been aroused, which was in sharp opposition to the other desires of the individual, and was not capable of being reconciled with the ethical, æsthetic, and personal pretensions of the patient's personality." The impression may, even years afterwards, appear as a symbolic memory. Hypnosis conceals these resistances and repressions. Now that hypnosis is no longer used or deemed necessary, the advocates of psychoanalysis claim that the resistances and repressions are quite evident.

According to this school the supreme law that reigns in the unconscious world is the law of pleasure-pain — seek pleasure and avoid pain. Under dream associations this idea has already been considered. Freud says, "Dreams are the royal road to a knowledge of the unconscious in the soul." They are the fulfillment of suppressed wishes. Professor Jung's careful work on reaction time in association of ideas also gives proof of this power house in the unconscious part of soul life.

Hidden Powers of Men. "I teach you beyond-man. Man is something that shall be surpassed. What have ye done to surpass him? What is great in man is that he is a bridge and not a goal. All beings hitherto have created something beyond themselves; and are ye going to be the ebb of this great tide and rather revert to the animal than surpass man?" Who does not feel the psychological power of such suggestions? Who feels that he is living up to the limits of his possibilities? Is it not often true that when we think we have reached the limit of endurance, some psychic stimulus carries us far beyond what we deemed possible?

This psychological truth is demonstrated in ordinary toil, in contests calling for exceptional endurance or activity, in meeting emergencies, in forced army marches, in the tenacity of life where hope seems impossible, in increased power by hypnotic suggestion, in mental healing, in the supreme efforts of genius. All people have some knowledge of what is called second breath. The already exhausted mother does the incredible in caring for her sick children, and appears to suffer no ill from it. At the supreme moment the athlete surprises himself and others by creating the *beyond-athlete*. Henceforth what was seemingly impossible is now easy. In learning telegraphy the individual reaches a standstill at about seventy words per minute for receiving. Here he generally stays until some emergency lifts him out of it; then he may go on improving. We all protest against stress and strain; yet in it is often concealed the secret of our own power and success. Many an individual will produce a better story, essay, etc., under severe stress and limit of time than he could with abundance of leisure. The brain processes become warmed up, so to speak, and related processes shoot together that seemed unable to do so on ordinary occasions.

Conditions that call for long physical endurance and loss of sleep are often met to an extent that normal conditions would indicate as impossible. Such severe strains are not always accompanied by the corresponding reaction we would expect. Neurologists admit that the difference in *tenacity of life* is still a mystery. The strenuous life of which all seem to complain may be at least one way to unlock the hidden energy of man and advance the race.

If we did not spend so much energy in complaining, we would have more left with which to face life and do our part. In short, I believe man, as well as the cosmic universe, has undiscovered powers. “*I teach you beyond-man.*”

Mental Healing. Healing by mental suggestion is as old as the race. It has been manifested in a vast variety of ways, but never in such multiplicity as at the present time. There are in this city more than a dozen distinct forms of healing in which suggestion plays the primary part. One of the greatest problems confronting science is the exploration of this old but lately discovered power, the discovery of its resources and combinations, its extensions and limitations, its values and dangers. Let no one, either for or against, be so deluded as to think these problems are solved. It is not a subject that can be approached with prejudice and narrow-mindedness.

“Things erroneous have an element of truth in them.” Behind the apparently insane performances of the *medicine men* among savages lie the suggestions and the subjective effects of faith produced in the minds of the patients. The same principle takes on other forms as applied by the ancient priests, and in connection with magic. So we might trace the principle through its various manifestations. The use of *patent medicines*, usually known by their unlikeness to drugs, could not be so enormous if some beneficial results were not obtained. You may say the effects are only the relief from imaginary difficulties. All I will say here is that diseases of body and mind have become wonderfully mixed, and it is for future science to untangle them. Perhaps it is as G. Stanley Hall says about blood and

intelligence: "God hath joined them in an insolvable mystery." But one of the fundamental problems of mental healing is this, Does not a diseased mind need medicine of some kind?

In New York there are letter brokers having millions of letters to rent. The letters come from adolescent boys and girls all over the American continent. They are the product of a mental and physical state produced by the suggestions of quack literature. Such suggestions strike the adolescent during the physical readjustment, when the soul is in a period of stress and turmoil. These letters are collected and kept for rent to the fake cure-alls. The fakers then know what psychological suggestions to make to wring the money from these suffering adolescents. By proper instruction, proper relations between parents and teachers, two thirds of all this could be avoided.

Without going into the extreme views on mental healing, let us formulate a few general facts.

1. There is no pain outside of consciousness. As self-evident and simple as this fact is, many consider it only nonsense. Whenever one considers a plant or animal unconscious, he does not think of its feeling pain, no matter what happens to it; to attribute the sensation of pain to it is to declare it conscious at that moment, if at no other.

2. The field of consciousness may be so directed as to prevent some sensations of pain, and in other cases to give direct origin to them or to intensify others.

3. To what extent pain may be excluded from consciousness by mental conditions we do not now know. Certainly in some individuals, under some conditions, it is possible to a greater extent than in others under other conditions.

4. The field of consciousness may be so directed as to increase or diminish any pain, no matter what its origin. Every physician knows this principle and has regard for it, whether he is dealing with a nervous headache or performing a surgical operation. Such results are accomplished either through autosuggestion, or through the suggestion of others by word, gesture, look, or attitude. It may be voluntary and conscious or involuntary and unconscious. *The extent to which this may be carried we do not know.*

5. Certain states of mind may, either directly or indirectly, produce serious disturbances of bodily functions; *but to what extent only future science can determine.* On this point the cases of proof number many thousands. The many disturbances accompanying hysteria are the most noted. There are thousands of people who have headache the minute they enter a closed room or see a heater. Others are often sick from odors which no normal individual notices, or even from the suggestion of the presence of such odors. Du Bois gives cases of hysterical fever that lasts for months. Mental dyspepsia may continue for years. Much of fatigue is only mental. There is almost no end to the list that might be given.

6. The persistence of such functional disturbances may finally be the indirect cause of organic disorders.

7. Whatsoever functional disturbances mind produces, mind may heal.

8. A despondent, melancholy condition of mind, by affecting appetite, sleep, and activity, may prevent recovery, even in such an organic disorder as tuberculosis. The removal of such conditions may be the indirect cause of recovery.

9. The fact that disordered functions may be set right by drugs is no proof that mind may not do the same.

10. The relation between organic and functional disorders is exceedingly close.

11. All forms of mental healing operate under the law of suggestion and autosuggestion.

12. The world in which we live is one of exceedingly complex phenomena, and it is probable that no one remedy will ever answer or meet all the conditions.

13. The most essential condition conducive to a disorder originating in our mental disposition is to believe that it is due not to our attitude of mind, but to real physical causes. To surmise that the cause may be in our own thinking is generally to begin the cure. This psychological paradox explains the readiness with which we proclaim the ills of others only imaginary and see in them a twist of mind, yet *our* ills are genuine. Observe the difficulty in convincing the purely nervous individual that the causes of his worry, fatigue, and sleeplessness do not lie in outside conditions but in himself.

Dr. Prince gives a simple explanation of the relation of some mental and physical disorders. He assumes that some groups of physical and psychical phenomena occurring together are so treasured and associated in the brain cells that whatever arouses one also awakens the other. Such a group he calls a *complexus*. Into the details of its application we cannot enter. We see at once that it explains only the reinstating of a disorder, after its origin in a physical cause; but it does not explain the power which an idea or emotion may have to originate such a physical condition for the first time.

The importance of health will make this subject one of perennial interest. Not only physical but moral health is involved. If we create the idea of a poor, weak, sinful, helpless humanity, how far does such an idea tend to produce just what we dread most? Davidson thinks it was this negative self-feeling that paralyzed the Middle Ages.

Normal and Abnormal Psychology. It is desirable to say a few words concerning the relation of these two branches of psychology. Interest in abnormal psychology was once supposed to belong only to the physician. Now we cannot hope to interpret our lives without some knowledge of animal psychology; child psychology, psychology of the uncivilized, social psychology, and *abnormal psychology*. Abnormal psychology treats of the unusual phases of mental life, such as automatic writing, trances, hallucinations, number forms, hypnotism, sexual perversions, dreams, ecstasy, the "sin-sick soul," fixed ideas, and the various forms of insanity. There are also marked disorders of all the mental powers, such as the disorders of memory, imagination, volition, feeling. Every one of these phenomena is in some degree represented in what we call normal life. Thousands of abnormal experiences the so-called normal individual conceals from others and from the physician. There is no fixed line between sanity and insanity, between hallucinations and powerful mental images, between illusions and faulty observations, between enthusiasm and ecstasy, between seriousness and melancholy, between consciousness of wrong and the "sin-sick soul." *They are all a question of intensity and complexity.* Whatever line we fix is for convenience and is perfectly arbitrary.

The disorders of perception are manifested chiefly in the form of *illusions* and *hallucinations*. The interpretations of external stimuli may vary from the simplest inaccuracy to the wildest conceivable distortions. Illusions have some recognizable external stimuli; hallucinations have none. This distinction is not always clear; there are often mixtures of internal and external stimuli. The religious enthusiast who sees angel faces in the floating clouds, and the one who sees the Commandments written in the sky, are not widely separated. Such disorders of illusion and hallucination belong chiefly to the perceptions of sight and hearing. The degree of these disorders corresponds to the powerful and convincing *influence* which they have on the entire mental attitude of the individual. This arises from his morbid inner life which he sees not; hence he believes all the more in their objective vividness.

The disorders of memory are many. We now have several treatises on the "Diseases of Memory." The first condition of a good memory is *impressibility*. When disturbances of this function exist, stimuli that act quickly are likely to leave no trace of their existence, and others are inadequately apprehended. These disorders exist often temporarily as a result of fatigue or illness; they are marked in dementia and in epileptic insanity. Accuracy of memory is only relative, but in morbid cases the past is always falsified. Hallucinations concerning the past seem the most real of all mental experiences.

Paramnesia is a term applied to a mixture of invention and reality. Some weeks ago a seventeen-year-old boy, then in one of our high schools, apparently lost all power of *orientation*. He started to visit a neighbor, and became

unconscious of his personal identity, relations and location. Since then he has rambled in different towns, perfectly sane in every other way.

Paralysis of thought occurs in a mild degree as a result of extreme fatigue or of poisonous narcotics. It is one of the symptoms of mental deterioration and senile dementia. Often there is quite a noticeable *retardation of thought*, even where there is no lack of mental ability.

Compelling ideas are those that seem to force their way into consciousness so as to produce a feeling of subjugation to some outside force. The fear of their return is often sufficient to enthrone them in consciousness. They usually accompany some emotional disorder, such as melancholia. The simple impulse to count or to ask one's self all sorts of questions is of a similar nature. When these *compelling ideas* remain for some time to harrow the life of the individual they are called *fixed ideas*. Most normal persons have periods when this disorder manifests itself in some form.

Delusions are false beliefs which do not yield to argument or experience.

Volumes might be written on morbid emotions. The secret experiences of most individuals will furnish material out of which they may form conceptions of morbid emotions. Fear is the commonest of emotional disorders, and accompanies nearly all mental disturbances. Its effect on the whole physical and mental organization is serious. Compelling ideas often take the form of some foreboding or fear. In melancholy religions, in spite of protest, fear in some form or other lurks at the bottom of emotional manifestations.

In some of these abnormal states all sensitiveness to physical pain is lost. In extreme cases the individual may cut out his own tongue, destroy his eyes, etc., and remain insensible to pain.

A careful study of the abnormalities of the will, of perverted sensations and perceptions, of material similar to that developed later under *Magic and Spiritualism*, or of any general abnormal psychology, will give the reader an idea of the relation between normal and abnormal psychology, and convince him that every normal manifestation of mind may gradually develop some quality of abnormality. Of course there are many apparently sudden transitions, but every analysis of such cases demonstrates that the suddenness is more apparent than real, and reveals that the two mental worlds are near together.

CHAPTER XIII

SOCIAL PSYCHOLOGY

Importance of Social Psychology. "A table of values hangeth over each people. Behold, it is the table of its resignations. If thou once recognizest a people's need and land and sky and neighbor, thou mightest easily find out the law of its resignations, and why it climbeth on this ladder unto its hope."

This and thousands of similar literary utterances from writers of the past fifty years are unformulated, if not unconscious, *social psychology*. Each individual loves to feel his self-sufficiency, his importance, and his independence of physical conditions and of the people among whom he lives. Most men are in the game of influencing others. Each feels his self-importance in proportion as his influence appears large, but he is usually blind to the constant influences exerted upon him; he sees not how little in him is really original and creative. He is largely unconscious of the fact that his very effort to influence others is mainly due to the conditions in which he lives. A man follows the beaten paths of social, religious, and political activity, feeling that he does so because it is *reasonable*. Through conscious and unconscious imitation, through intercourse with people and attention to their doings, we acquire most of our habits, our conventionalities, our methods of doing things, our bent of mind, and our general line of action.

Prisoners we are, whether we know it or not. *The greatest moment in the development of individuality is the moment when an individual realizes how great an echo he is.* The influence exerted upon us by others is not in itself an evil; the evil lies in that contented ignorance of these forces which has led to an entirely erroneous interpretation and valuation of social phenomena.

Social psychology is so important for all future study of sociology, history, ethics, and literature that its complete omission from a beginner's book would be a mistake. We need not hesitate to assert that its study is essential to the present and future welfare of humanity. Scientific progress consists in the discovery and application of forces hitherto unknown. I venture the assertion that a comprehension and application of these forces will advance the interpretation of human life, human history, and social activity by a hundred per cent. Le Bon says: "It seems that behind the visible facts are hidden at times thousands of invisible causes. Visible social phenomena appear to be the result of an immense unconscious working, that, as a rule, is beyond the reach of our analysis." These unconscious influences to which we are subjected by reason of our presence among men, act as forces still unknown. Ere long a knowledge of these forces will constitute the essential common foundation for ethics, sociology, history, and political science.

What is meant by Social-Mind? Spencer early called attention to the fact that the coming together of individuals is accompanied by certain psychological manifestations which never appear so long as individuals remain separate.

This he called *superorganic evolution*. It is now clearly manifest that these forces thus put into operation are not simply the addition of phenomena already active in each separate individual. An analogy from the chemical world will make the idea clear. Ozone is a chemical compound whose chief manifestation is a peculiar odor, but this manifestation has no existence save when three atoms of oxygen combine. To say that ozone exists in each separate atom is mysticism. Atoms contain merely the potentiality for such a phenomenon, and it is brought into existence only by their combining in a given way. In like manner certain psychic manifestations and powers come into existence among men by virtue of their association. Heretofore these manifestations have usually been attributed to individual will and deliberation. Now social psychology reveals the presence of many forces which at least play a part in directing even such *wills* and *deliberations*. It is the combination of these forces, which seems to be superimposed on the individual mind with certain intensified forms of individual active qualities, that constitutes what we call *social-mind*. *Collective-mind* is a better name because more significant.

Does collective-mind then contain any forces or elements not found in the separate individuals? *Nothing more than the possibilities which their natures furnish should they come together under given conditions*. But possibilities and potentialities are not actualities,—not the real things. *Social psychology* treats of those apparently impersonal forces, manifestations, and phenomena that result from certain combinations and relations of individuals, and that appear not to have any existence under other conditions. Without doubt the conscious or dimly conscious *feeling*

that others are in a similar state of mind definitely modifies the individual tendencies, and often causes many potentialities to become actualities that would otherwise never have such an existence. This power of *sensing* what is going on in other peoples' minds — what they are thinking, feeling, and intending to do — is directly or indirectly the occupation of every one within given circles. It is the backbone of *public opinion*.

The Suggestibility and Credulity of Crowds. All writers are agreed that suggestibility and credulity are more characteristic of the crowd than of the individual, and that they are increased through the appeal to prestige and to strong emotions, through positive *assertion*, *repetition*, and *contagion*. The mob mind gives way to suggestion and is credulous to an extent that baffles the normal imagination. The more sources from which suggestions come and the longer they continue the more powerful they are.

As late as 1666 a Jew proclaimed himself the long-expected Messiah. The Jews were thrown into an excited condition surpassing description. The contagion spread; intelligent, doubting rabbis fled for their lives; all traffic in many Jewish centers ceased. In time even the conservative began to yield to the suggestion.

In 1857 a missionary called a prayer meeting for the benefit of depressed business men of New York. The suggestion spread like wildfire; even the firemen and policemen held their meetings. The writer of "Economic Crises" in describing it says: "It is doubtful whether under heaven was seen such a sight as went on in the city of New York in the winter and spring of 1857-1858."

Le Bon says, "The improbable does not exist for a crowd." This enables us to understand the creation and propagation of the most improbable legends and stories. Some Crusader made the suggestion of the appearance of the long-dead St. George on the walls of Jerusalem, and by contagion the miracle was soon accepted by all. The greatest wonder concerning the noninitiated witnesses of magic and trickery is not so much the marvelousness of the performances *as the credulity and weakness of the report made by the crowd of witnesses*. Dr. Hensoldt, after observing several "magic-tree" performances and the "unsupported rope" that seemed to extend to the sky, said that the Hindu has so perfected the "art of suggestion that, while under its influence, our senses are no longer a criterion of the reality around us, but can be made to deceive us in a manner that is perfectly amazing."

This collective suggestibility certainly finds its way into the pages of history, hence some knowledge of social psychology is indispensable to a study of the past. Have we the truth about any of the great characters of earth? I do not believe it is possible to obtain the whole truth, neither does it matter. *Ideal heroes are more valuable than real ones*. If efficiency be the standard of values, then ideals are the greatest treasures ever produced by human minds. "The letter killeth, but the spirit giveth life." Three different periods have produced three different interpretations of Napoleon. Within less than a decade a great national hero of our own nation is assailed by a few words and formulas, such as "usurper," "king," "new nationalism," suitable to provoke images of the most formidable kind. Not by evidence and knowledge, but by repeated,

broad-sided suggestion, thousands are converted from friends to enemies. In like manner thousands are inoculated with *socialism* by the fascinating images of *plenty*, *ease*, and *contentment*, with which the doctrine fills the imagination.

Le Bon says: "The events with regard to which there exists the most doubt are certainly those that have been observed (simultaneously) by the greatest number of persons." Thousands were present at the battle of Sedan, yet it is impossible to decide who was in command. Lord Wolseley has proved that the most important incidents of the battle of Waterloo have been erroneously reported by hundreds of witnesses.

The Successful Leader of Crowds. In some measure, at least, we must admit that the successful leader, like the poet, is born, not made. He intuitively applies the forces of social psychology. He must appear superior and boundless in his resources. He therefore appears to be inscrutable. Silence, save on necessary occasions, adds to this inscrutability. On proper occasions he appeals to prestige as if it were the law of God. *He does not reason; he suggests, affirms, then commands.* He fires the imagination by exciting the proper images at the proper moment. Leaders must rise above contempt and persecution. I have witnessed several mobs, and in every case the leaders were cool, silent, and *defied prosecution and responsibility.* This acts like magic upon a crowd.

The School is the Only Hope for Political Education. The psychologist who knows how easily all kinds of educational, religious, social, and political fads are propagated by

suggestion and contagion naturally loses faith in the educational value of political campaigns, where every possible effort is made to utilize the suggestibility and credulity of the crowd. The quiet research of the classroom and the reading of solid books and magazines must accomplish this education, and social psychology must be its foundation. This country is passing through a period of the wildest legislative experimentation ever known in any land. I have faith in the people, even in the uneducated, where their common sense can be appealed to singly. To despair of the people is to wish the world annihilated. But I have little faith in the *crowd* dominated by the suggestion of and the thirst for victory, a thousand times stronger than by the desire for truth.

All writers are agreed that in proportion as the social-mind is operative, individual intelligence recedes to a lower and lower ebb. Under such conditions, when charges are made against a person's character or his management of public affairs, thousands, as individual thinkers, may be convinced of their falsity, yet in public they assume the truth of such statements and act upon the same without question. With our telephone, telegraph, and a flood of periodicals and newspapers to annihilate space and time, and, in a measure, to make the assembling of the crowd unnecessary for the spreading of suggestion and for its contagion, have we any hope save in that education that seeks *truth rather than victory*? The popular mind dreads the realities of life. The populace loves to believe in some Utopian remedy for all ills, both real and imaginary. This is the secret of the spread of educational and political fads; yes, of such things as the "South Sea Bubble."

Had we some of Plato's wise and good leaders who were able to discover in advance the better way, and who had power to mold the crowd accordingly, we might have more hope; but, as it is, it seems that most of our leaders accept what the crowd demands, not because they believe it best, but because it is the road to victory. Under our democratic government I see no way for future progress save a broad, sound, and thorough education in our public schools.

A Few General Conclusions. 1. Social forces are the result not primarily of collective intelligence, but of the power of unconscious suggestion and of underlying impulses. Half a century ago such a question as, "Can the human race consciously aid its own progress?" would have received about the same attention as the ludicrous questions of the circus clown. Now it commands the attention of all thoughtful students of society and has even received a negative answer from several eminent scholars. We now know that the future is not planned and then logically and systematically carried out; it grows out of conditions. The careful student will discover that even such planning as exists has its deep underlying causes, and that reason is chiefly occupied in seeking ways and means to ends projected by deeper forces.

2. Habit and custom are deeper and more powerful than law and convention, and feeling and instinct are still deeper than and behind custom and habit. Intelligence is chiefly occupied in reflecting on what these forces produce and in discovering ways and means. In some measure custom and tradition have made fools of us all.

3. All social phenomena are subject to the general law of causation. The discovery of these causes has just begun.

4. We are seldom conscious of the power of the long past echoing in us as individuals; hence our shock when we observe it in others, especially in whole nations, as in China. Then we say: "Those abominable Chinamen! If they would only do things our way — the right way." Custom is social or objective heredity — the conditions into which one is born. It is all the more powerful because it is not felt as an outside force. Under the force of conventionality one *feels* all the while that he is conforming simply because others do, but he is surprised that any one should question custom. He thinks he conforms to that simply because it is *all right*, but in reality it is because the force operates unconsciously. For example, I have never yet been able to realize either the artistic beauty or the comfort of a dress suit; yet as a matter of conventionality I wear one occasionally. This I do because others do, but it is nonrational imitation and we may argue about its advisability. However, suppose that I set up the claim that the general style of dress for men and women should be exactly the reverse of what it is, what chance have I of inducing any one even to argue the question? Millions would simply cry aloud that it is all right the way it is. In the main, fashions exist not because they are in reality the most useful, beneficial, and artistic, but because *we have come to think them so*. This the claims of different nations and of different ages demonstrate; yet, with most people under the sway of such customs, the usefulness and artistic beauty of these customs dare not be questioned.

5. The characteristics of the group and of the individual are often opposed to each other. The social-mind tends to be stable, constant, conservative, computable. The individual is variable, irregular, original, and inventive.

6. Society gradually develops a certain fund of sentiment along various lines that becomes practically irresistible. This force is manifested in the form of the *will of the people*. Tolstoi, near the close of "War and Peace," asks, "What is the force that moves nations?" He says that men foolishly teach that Napoleon commanded six hundred thousand men to march into Russia — and they marched. Alas, they could not have marched unless six hundred thousand commands had been previously given. He then says: "If the source of power lies not in the physical and not in the moral characteristics of the leader, it is evident that the source of power must be found outside the person — in those *relations* in which the person possessing the power stands to the masses."

7. Kidd and Schopenhauer are essentially correct in maintaining that, while reason beguiles us into believing that our time and individual interest are all-important, yet the forces that are working out our development are primarily concerned with those widely different interests and conditions possessed of an indefinitely longer life. Has not evolution progressed from the lowest forms of life up to man? Certainly we cannot believe that all further progress was then turned over to the caprice of human reason.

8. Finally, laws, languages, constitutions, and religions were never made by conscious effort; they simply grew out of the conditions. Intelligence formulated and directed them to the accomplishment of their ends.

CHAPTER XIV

WILL, FREEDOM, AND EDUCATION

In the scientific study of psychology we are compelled to use words, descriptive of human life, in a somewhat different sense from their everyday use. In no other science are we so embarrassed in this particular. As a rule, in physics, chemistry, astronomy, etc., the reader does not insist on putting his own meaning into the terms used, but seeks the scientific meaning of the writer. In psychology we not only contend with the loose meanings of daily speech, but also with religion, theology, and philosophy, which are daily proclaiming their transcendental meanings of these terms. In common speech, and often in theology, *will* and *freedom* or *free will* are assumed to mean the same thing ; but biologically and psychologically we must never think of them as identical. *Will is simply the resultant of all the forces operative in an organism at any one time. Free will involves the conception of a separate and distinct power of mind which may compel action independent of all internal and external influences.* Some writers, such as James, and more recently Miller, appear to limit *Will* to the relation of the mind to its ideas and feelings. To define will as "merely the control of action by ideas," omits all the extensive biological use of the word by which the very deepest springs of action are designated. It would

seem more fitting to define volition as "merely the control of action by feelings and ideas." Volition is but one form of will.

Biological and Evolutionary Investigations. What follows will be based upon five principles which we deem well established by modern science. They are: 1. Biological and evolutionary investigations reveal the will as the primary and dynamic element in psychical life. Intelligence is a growth, a secondary development.

2. The development of the will may be characterized by three stages — *impulse or instinct, desire, and will (in the narrower sense)*.

3. Desire or impulse, with conscious striving, presupposes some intellectual development and soon forms a union with *will and idea, which coöperate as a single force*.

4. *Will, in the narrower sense, or volitional, rational will*, is desire strong enough to have a feeling of *warmth or realness*, and is directed by purposes, principles, and ideals. Its highest form is present in rational, self-conscious thought. We become keenly conscious of it in the pursuit of the practical ideals of life. Pleasurable feelings accompany conduct that conforms to these ideals, while conduct not in harmony with them produces a feeling of dissatisfaction.

5. The rational will constantly subjects the lower will, impulses, and desires to criticism and selection, in conformity to its ends. *Herein arises conscience*.

Kinds and Sources of Human Action. Investigations will show that our actions may be resolved into automatic, reflex, instinctive, impulsive, habitual, and voluntary. But

in what order? To adequately comprehend this subject it is necessary to bear in mind many of the facts and conclusions reached in our consideration of such subjects as *the will to live, various instincts, imitation, habit, feeling and emotion, apperception, power of suggestion, and mental activity not in consciousness*. These are the inexhaustible fountains which largely regulate all *voluntary action*. *There is no such thing as will, separate and apart from the other powers of mind.*

1. *Automatic action* is found in respiration, circulation of the blood, digestion, and the nutritive processes of the cells. These are fundamental, and nothing is more evident than the fact that the degree of will displayed by any man is, in a measure, dependent upon these functions. The renewed feeling of strength which comes to the dissipated individual who has resisted temptation for a few days is due more to a restoration of these processes to their normal functioning than to the psychic consciousness of having resisted.

2. You have not forgotten the discussion of the many possible responses of the nervous system to sensory stimuli, known as *reflex action*, and the close relation of such action to habit. They are not directed by consciousness, but are determined by nervous adjustments and the readiness of the nervous discharge. *This readiness of nervous discharge* is linked with instinct and inherited predisposition. Many of the ready reflexes are but manifestations of the instinct of self-preservation. Consciousness may accompany some of the complex reflex activities without being in any way the cause. We may know that a gun is to be fired, that a thunderclap is coming, and be conscious of our movements, yet consciousness is not the cause, but only the

spectator. Many higher actions of life seem to be of the same nature. Such are well exemplified in *compelling ideas* and in hypnotic phenomena. Should we give as free an interpretation and application to reflex action as some writers do, we would extend it to every form of human activity, but in all events, its essence is the same. Under reflex action, James gives the case of a retired army officer into whose ears mischief-making boys were accustomed to cry "Attention," in order to see him drop all his groceries into the gutter. Signing one's name may be a highly voluntary act or it may be simply a secondary reflex. Reflex action in its connection with instinct and habit is one link in the mighty chain that leads up to the most complicated acts of human life.

3. *The instincts fix the general line of conduct for all living organisms.* Instinctive acts have their gradations. At first they may be unconscious; later, they may be accompanied by consciousness before consciousness begins to modify the activity; still later, instincts operate under the guidance of reason and experience. Instinctive action may be modified in a thousand ways; nevertheless, generally and comparatively speaking, the channel of any given instinct is narrow. We proclaim our moral and intellectual maxim of "love your enemies," while instinct says "kill them off." Volumes might be written on the failure of the idealistic to overcome the instincts developed during the long past. Utopian forms of government live in the imagination only, while their promoters are laughed to scorn. Observe how William James's reasonable and practical proposed *substitute for war* was treated largely as a joke. We answer that all these things are *unreasonable*, but that is simply

another way of saying that they are not in line with our deepest instincts. The man who declares it only reasonable that the millionaire should divide his goods, is no more inclined to divide his possessions than the millionaire, except on the assumption that he would get more than he now has; and should he become a millionaire, he would declare it wicked to be forced to such a division. However, the *idealistic* fails only by ignoring instinct and getting too far away from practical life. *The chief modifications of the instincts in man have been produced by ideal adjustments.*

In Chapter III we dwelt extensively on the power of *feeling* and *emotion* as one of the *springs of life*. These are but the outcome of the instinctive tendencies in their endless combinations and conflicts. In man the instincts use the imagination and idealistic faculty to inhibit or intensify these feelings.

4. *Impulsive action* need not detain us long, since all instincts are impulses. But not all impulses can be properly classed as instincts. Impulse is irregular, more individual than instinct, appears and disappears unexpectedly, is felt in consciousness, and obeyed without any conscious reason. In everyday life we witness examples of these impulses, such as the sudden desire to cry aloud, to run away, to jump off high places, to bite the nails, to do the nonsensical and unusual, to kill, to commit suicide. When we consider the abnormal and the criminal we must always look for deep impulses. Impulses, however, are not wanting in so-called normal life. Suggestion and autosuggestion, operating behind the screen of consciousness in what we call the subconscious, are powerful agents in producing impulsive action. This may be confirmed from a

multitude of sources, as seen in suggestive therapeutics. But the posthypnotic phenomena already described on page 225 are all that is necessary. Later we shall see how this contributes to the *feeling of freedom*.

5. *Habitual action permeates the entire physical and mental activity.* What is strictly voluntary does not remain so long, but is soon brought under the compelling power of habit. We will avoid repetition by asking the reader to call to mind Chapter II, in which Habit is termed one of the *fountains of human life*.

6. *Voluntary action* is the goal to which all these lines have been tending. It involves some prevision of what is likely to happen. Hence, as James says, "*Voluntary movements must be secondary, not primary, functions of our organism.*" *They have their roots in the activities we have just considered.* At first the consciousness accompanying instinctive, reflex, and impulsive action seems only to be an observer. The same is true of well-established habitual action. James gives a good illustration of instinctive and reflex activity. He says: "The other day I was standing at a railroad station with a little child, when an express train went thundering by. The child, who was near the edge of the platform, started, winked, had his breathing convulsed, turned pale, burst out crying, and ran frantically toward me and hid his face. I have no doubt that this youngster was almost as much astonished by his own behavior as he was by the train." However, consciousness in the process of relating feelings and ideas gradually comes to be one of the factors in producing and preventing action. *This power is known as volitional control.*

In Miss Calkins's chapter on the Nature of Will, I find a careful analysis of volitional control. However, I cannot agree to limit *will* to volitional control, which is here described as a personal attitude with "anticipatory consciousness" which is composed of three elements: (1) the consciousness of realness; (2) the idea of the future; (3) the feeling that the end depends upon *me*.

For example, I *desire* a million dollars. You say, "Why do you not make an effort to get it?" My answer is a slight ironical smile. This means that the *desire* has not the "feeling of realness" about it to set me in motion. *The desire lacks the realistic, vitalizing power of the imagination that so dominates us in early life.*

Volition appears to direct Thoughts and Feelings as well as to inaugurate Action. While the immediate effect of every thought, feeling, and impulse is to manifest itself in action, and although "thought may be only repressed action," yet the *inner side* of the consciousness of directing thoughts and feelings is what most people call their will. Let us accept the element of truth there is in it and try to bring it more distinctly to our attention. I am now thinking about my psychology, but suddenly I remember that I am to deliver a lecture on literature. I change my line of thought without any visible physical action, but I overlook the fact that it is the *feeling of realness* of future action that prompts the modification. The object is without and the movement remote, not resident.

But now I am tired and sleepy. The *anticipatory feeling* of rest and sleep sets me in motion at once. I close my book, turn out my light, walk upstairs, and undress — not

as separate volitional acts but rather as habitual and secondary reflex actions. The *idea* alone is sufficient to produce this long list of activities, while I am *primarily conscious only of the idea*. *Such a process is due to the power of an idea to utilize the past experiences of the individual without thrusting them distinctly into consciousness, and so to set in motion any or all of the forms of action we have been considering*. This is what writers call *ideo-motor action*. It is no exception and no paradox, as once supposed, but it is the very essence of volitional control. *It is choice without effort*. Here there are no conflicting ideas; but if there be any *conflict* at some point, it is dropped out of consciousness and some idea reigns supreme. This principle finds its extreme manifestation in hypnotic phenomena and in *fixed ideas*. But daily life is filled with common examples. On seeing a bird my boy hurls a stone at it. I see an orange on the table and before I know it I am playing with it. I think of a name and immediately I am writing it. A call to dinner usually produces obedience without a struggle. *Choice with effort and through deliberation is not the rule, but rather the exception, in what we call volitional control*. That many ideas and feelings do not result in action simply because they are checked by other ideas and feelings, and that action may just as readily take place without effort as by effort and deliberation, are what seem to confuse students in the study of this subject. All this would seem simple and natural if we could only realize the fact that *through apperception, habit, and the subconscious fountains of life, the accumulation of all the psychic phenomena of the past is made the ground for our present actions*.

Deliberation is the Conflict of Ideas and Feelings behind which lie the Instincts, Habits, and Past Experiences of the Individual. If these pages present to you facts in accord with your experience and appeal to your sense of truth, they will probably start a conflict between these ideas and your previous habits of thought. The war may be long and vigorous, for it will probably modify some of the beliefs on which you have thought so much to depend. Finally, adjustment will come, and you will declare these ideas true or false. *This is deliberation.*

But observe that if these pages produce deliberation at all, the kind and the extent of it will all *depend absolutely on the mental condition of the reader.* The child of ten or twelve will hardly deliberate about this discussion; the adolescent will more readily accept it than the matured; the banker and business man will more readily make the adjustment than the theologian, who may consider it so false that it is not worth his attention; still others may find it so in accord with all they have thought that it will only excite a *sense of joy.* This plain fact should be well elaborated in your mind, inasmuch as deliberation centers chiefly about the moral life, where each one develops by degrees strong sentiments about good and evil, right and wrong, pleasure and duty. These sentiments come in conflict according as the mental contents of the individuals differ.

Finally, all deliberative action tends to become habitual and secondary reflex action. When a decision is once made, it is more and more easily made each succeeding time, until it finally drops under some of the forms of action already considered. The strong emphasis laid upon this fact by the moral reformer is absolutely justifiable and

far more so than is generally realized, but the law is universal. What was once the most irksome duty may become so habitual and secondary-reflex as to become pleasurable, devoid of effort; in short, ideo-motor action, and as such to *preclude the probability of any other line of action as completely as in the case of the moral degenerate.*

Education and Freedom. From what has preceded, the notion of freedom and education appears paradoxical. About the time Calvinistic determinism was in its last death struggle, scientific psychology began to limit the field of freedom on an entirely different basis. This limitation is encountered whether you start from *within* or from *without*, from external freedom or from internal freedom.

1. *Limitations of freedom.* This psychological limitation is enforced from *within* by all the hereditary influences, natural tendencies, instincts, and impulses previously presented in this book. From *without* by the power of education to fix life, by environment, and by the fact that sociology has made it impossible for us any longer to consider man's acts apart from the acts of the social whole of which he is a part. In other words, his acts independent of others would probably bear no resemblance to his acts as a member of a social group. This constitutes the double aspect of our problem. Let us view it from the standpoint of education.

For three hundred years the cry in education has been "follow nature." By this we understand that there are in soul life certain fundamentals upon which, if we build, the result is comparatively permanent, whereas artificial education builds on the less primary and fundamental,

and is consequently less efficient and more easily set aside. In other words, that is most natural which needs least external stimulus to call it forth, and abides with greatest permanency. That is most artificial which needs most external stimulus to call it forth, and most easily disappears. The extreme form of artificial education is found in asceticism, where every known natural inclination is considered evil and a thing from which the soul should be freed.

2. *Practical aim of education.* For purely practical ends, if education is to mean anything must it not fix and strengthen some of these inherent tendencies and inhibit others? That is to say, we must cause the individual to will in some directions and deprive him of the power to will in others. If this is not true, what does all our moral and religious education mean? If, after years of toil on our part, the child is as free to choose the evil as the good, our education is reduced to zero and has no meaning at all. It is only preconceived ideas that have blinded our eyes to this important fact. Even such a thinker as Lyman Abbott would prove freedom by saying, "I know that I can choose the good and therefore I can choose the evil." Such is the common way of solving the problem. *Feeling* that we are free in our accustomed line of action, we assume that we would be equally free in other lines. Provided I choose the good, does it follow that I can with equal freedom choose the evil? Provided that I choose to work day after day at my book, does it follow that I can with equal freedom choose to loaf around a hotel day after day? Can the loafer with equal freedom choose to write a book? Do not such possibilities stand

in inverse ratio to each other? The more I am free to choose evil without any blocking or opposing ideas or feelings, the less I am free to choose the good. Suppose Lyman Abbott should be requested to murder a helpless mother and her children. Could he do it with the same freedom that he would give them food and clothing?

Common Evasions of the Problem. I know you have already answered all these questions with the common evasion of the centuries, by saying, "He could if he wanted to do so." But where shall he get the sufficient "want"? Nine tenths of all this speculation receives its death-blow because the *if* is impossible. Do we not attempt to instill in a child love for good literature, on the assumption that to whatever degree we succeed we disqualify him to choose the bad? One who has been trained to live a noble life of self-sacrifice irresistibly does the good. It is not a simple, single act of will; *his whole psychic life is behind his conduct*. Can any act of will create a genuine hatred for your mother? Fortunately heredity, education, and association have deprived you of this choice of evil. But you think of some *Nero* who *did* hate his mother. Yes, with identically the same heredity, environment, and education you would do the same. We often hear a person say, "If I were in such or such an individual's place I would not do so and so." What he really means is that with his *present thoughts, feelings, and inclinations he would not do so and so*. But what if these were all changed?

The above cases may be called extreme, but they serve to demonstrate what education is everywhere accomplishing in fixing human activities and beliefs. In most

cases life is so varied, and so many tendencies are educated, that conflicting inclinations are kept alive. Among men there exist all degrees of inherent tendencies. No two individuals are alike, and education and conditions often make the gap wider. Often a lifetime is too short to make one inclination supreme, and the undesirable force breaks through our educational barriers, leaving havoc and ruin behind it. "When any man thinketh he standeth, let him take heed lest he fall." Even Buddha was psychologist enough to see that human conduct springs mainly from instincts and impulses. He names fifty-four such tendencies.

The Feeling of Freedom. This sensation is due: (1) to the absence of conflicting ideas and feelings; (2) to the fact that the forces pushing us on are hidden from us, buried in our past; (3) to hypothetical conditions; (4) to the personal attitude after a struggle. The first two statements have been amply demonstrated in the preceding pages.

1. *The feeling of freedom includes many hypothetical conditions.* The inquiring student will probably say, with an air of triumph, "You know you are free to stop writing." I ask on what condition, and he again replies, "If you want to stop." So far we are perfectly agreed, provided my "want" is powerful enough to overcome all other desires and opposition. But let us inquire what this means. How can my "want" obtain such power? Take first some of the objective conditions. Yes, if the house were on fire, I would stop. If I should hear the cry of murder, I would rush out. If I should suddenly remember a forgotten engagement at this hour, I might proceed to fulfill it. If you should bet

me ten dollars that I could not stop, I would probably do so. Should I behold a beautiful sunset, it might so entrance me that I would forget this work. Now examine the internal side. Should I feel weary and exhausted, I might stop. Should I strike a difficult point and uncertainty seize me, I might cease for a while. Should one of these suggestions start me to thinking about Goethe's "Faust," I might be carried off into speculations foreign to this topic. *But if none of these nor of the thousand other possible conditions occur, I am going right on.*

This is the whole thing in a nutshell, and if this were once generally realized, two thirds of all the differences between the populace and the psychologist would be settled. I am now hesitating whether or not I shall stop writing. Many thoughts may occur that will turn the scale and cause me to stop immediately; but if they do not come, I shall write until five o'clock. Let us examine further. I may feel my work so pressing that many of the things I mentioned above will not stop me; or some of the things may not appeal so strongly as it now seems they would. I may think my engagement of little importance; or I may have formed the *habit of never missing an engagement*. All this will count. A schoolboy on the other hand might stop for a band, a street parade, a newly arrived robin, or a young lady going by. Whether I stop or do not stop is entirely dependent upon what may occur and how it appeals to me at the time. *Everything depends upon the relation of the occurrence to the thing in hand and to the mind of the doer.*

2. *Are we free to expel ideas from consciousness?* Though a thousand proofs may be produced to show that our

stream of consciousness is determined by association of ideas, yet some set up the claim that when ideas do enter consciousness we need not harbor an undesirable guest. Of course they mean to go a step further and add, *If we do not want to do so*. But who shall determine what an undesirable guest is? There will be differences of opinion, depending on the variations of instinctive feelings, past experiences, habits, and the like. Many people are dominated by *compelling ideas* which they are unable to shake off. Are they all insane? Have you not often been harassed by some depressing idea or feeling, perhaps even by some trivial thing, from which you were unable to free yourself for some time? Had Luther seen on a billboard the words *Catholic* and *Democratic*, which would likely have usurped the right of way in consciousness? Why?

Let us come to a personal test. *I once saw a mother eating the flesh off of her then living child*. What but my own nature and experiences determined how long I would think of it and dream of it? Suppose a hundred different persons read this statement, will there not be a thousand different causes operating in determining how long each shall think of it? Will it affect children the same as mothers? May not the student naturally turn to speculate whether it was said just for effect? The law which you evidently see operative here is operative for all ideas and feelings, only in most cases it is more obscured. We cannot escape by this road.

3. *Is the after-feeling proof that we are free?* The last ditch that surrounds the camp of freedom is the *after-feeling that we might have done otherwise*. In the first place we could never tell unless we had tried it, and that means

that some thought or feeling about it must have arisen that did not arise before. Our whole attitude shows that this is what we really mean. We express it by saying, "If I had thought of this or that; If I had not yet decided." This throws light on the second fact. Our feelings *before* the act and *after* the act are never the same, nor experienced under the same conditions. We say if we had this or that to do over, we would do differently. Of course we would. We have a different basis of action.

Have we not also demonstrated that we are seldom conscious of the forces that lead to action? The power of instinct, of habit, of unconscious imitation, of past experiences, of custom, of the social or psychic atmosphere, of physical conditions — all are manifested through us, without necessarily being presented in consciousness as such. Likewise, does the posthypnotic suggestion produce the result although the *individual is ignorant of the cause*.

Ways of conceiving Freedom. 1. From a psychological viewpoint that man is freest whose soul is so stored with varying feelings, ideas, and experiences that he has many possible lines of reaction to whatever conditions *may be presented*. Perhaps the most popular way of conceiving freedom simply means *many possible lines of action*. From that standpoint the most highly *cultured* man with the greatest variety and largest storehouse of ideas would be the freest. *Herein, properly directed, education overcomes the apparent paradox and gives us different ideas and feelings, thereby increasing the possibility and probability of varied reactions to various beliefs and to different lines of*

conduct. But under definite psychological laws these ideas are stored away and come forth according to the laws of association of ideas.

2. *Individuals with some dominant feeling or idea without any great inner conflict are often cited as proof of freedom.* No agreement can be reached concerning psychological freedom until we adequately divide the subject and view it from different sides. For example, there is a popular notion of freedom exactly the opposite of that just stated, yet few feel the contradiction. Such characters as Napoleon, Joan of Arc, Luther, Cromwell, Bruno, and Garibaldi, are often referred to as models of freedom. But their possible lines of reaction were greatly limited. Such characters are certainly efficient in *their line*. They are the very embodiment of *will*, but certainly not of *freedom* in any liberal sense. The philosophical historian is puzzled to understand why Bruno should prefer persecution and death at the stake, to the propagation of his doctrine in the best universities on earth. There is but one answer — *because he was Bruno*. The artist Wirtz has brought out this idea of a fixed nature in his painting of Napoleon, in which he represents him as standing in hell, looking calmly on at the suffering as unmoved as he was on the battlefield.

3. *Again, between inner and outer freedom there is no absolute distinction.* Many will say: "Certainly I follow my feelings and ideas, but these are my own; I may keep them unspotted from outside influences. More than this, they are my very self." But the poet says, "We are a part of all we have met." Each individual, while assuming *his* incorruptible nature, deliberately proceeds to try to influence and modify the ideas and feelings of others. From a

practical standpoint life is largely one great game in which each individual or group of individuals endeavors to subjugate the greatest possible number to the greatest possible extent, and purely on the assumption that there is some *avenue* to their *inner-life* if it can only be found.

The Moral Aspect. The moralist and the psychologist have been warring over *words*, not over content. Man is not something apart from these forces we have been considering, and simply pushed on by them; *he is himself the sum total of these internal forces*. Every day the moralist exemplifies the laws set forth in this chapter and proclaims them to the people. This view simply states that law and order reign in the moral world as well as elsewhere. Some say that such a belief in universal causation would paralyze action. It probably would have some effect if action depended upon such beliefs, but history proves that such a hypothetical notion is false. Suppose we make a historic list of thorough believers in *universal causation* and an equal list of nonbelievers, and see if history demonstrates any comparative diminution of activity on the part of those belonging to the first list. Augustine, the founder of philosophical determinism, was certainly not inactive. The fact is that men of energy and ambition are not paralyzed by any belief. They *feel* themselves a part of the great forces that are shaping the destiny of the world.

Far from being immoral, this view is intensely moral. Of infinitely higher value is the conception of law in the psychic world as compared with the idea of lawlessness by which the youth is led to believe that he may lead any kind of a life, any length of time, and then *just stop*. If

ever we place moral instruction on a firm basis, it must be on the grounds that *immorality produces permanent, detrimental physical and mental effects*.

We are told that from this viewpoint moral responsibility has no meaning. We shall see that exactly the reverse is true. Let us begin by asking what freewill has to do with getting hungry or thirsty. Hunger and thirst are implanted in us as safeguards to physical life. *The feeling of responsibility performs a similar function for moral life*. I hold myself and others responsible for certain lines of conduct through inner laws of my being. *That I hold others responsible is only justified by the effect it may have on them and, by example, on others*. This is seen in the fact that we would deem it cruel to hold the imbecile and the insane responsible. *Responsibility is a moral medicine to the end of begetting healthy moral life*. We may praise or blame the living : (1) for the effect it may produce on themselves ; (2) for the influence the example will have on others. *The dead we may only praise or blame for the effect it may produce on the living*.

Day by day as I admonish and correct my boy I am building on his inherited instinctive basis a *sense of responsibility* which I at least hope will become one of the determining forces in his destiny. On an assumption of absolute freedom, I could have no hope that this sense of responsibility would not at any time be pushed aside. If you can succeed in making a drunkard *believe that he is responsible* for his conduct and to his family, you have implanted an idea and a feeling which will act as a determining force. Does it not seem strange that any one should argue a proposition and constantly practice the opposite ?

It is said that, under such a view as is here set forth, we should never say to an individual: "Now, look here; you could behave if you only would; you could understand mathematics if you would only think so." But if we are not arousing something in him that will cause him to act differently from what he would, had we said nothing, why not save our energy? We have a hidden faith in our ability to turn his action or thought in some other line.

With the old idea that a crime committed must be atoned for by a certain amount of suffering, irrespective of the effect of that suffering on the individual, or its influence in preventing others from doing similar things, I have nothing to do; it is beyond me. It is this old echo that lies at the basis of the objection that, if we are not free, *we have no right to punish any one*. Rational punishment is based upon exactly the opposite assumption. The individual who commits an offense against society is supposed to suffer a punishment greater than any advantage derived from his act. *The consciousness of this fact is supposed to be a determining force in preventing him from acting.*

When a wise physician finds a man sick, he does not inquire whether it was of his own free will. He administers medicine according to the disorder. If suggestion and mild treatment will heal him, very well. If need be, he does not hesitate to inflict pain that he may heal him, but he inflicts no unnecessary pain. The same principle applies to moral disorders. Lying, stealing, cheating, selfishness, drunkenness, licentiousness, sex perversions, etc. are one and all moral disorders or variations from the standards of conduct, and all remedies should be applied only from the standpoint of prevention and recovery.

CHAPTER XV

MAGIC AND SPIRITUALISM

Historic Development. History tells us that primitive man was almost wholly occupied with the unseen world as the source of all his knowledge and authority. The reported phenomena of this unseen world have assumed almost an infinite number of forms and varieties. One after another has been discarded as superstition, often to reappear in another form. Once the insane were supposed to be possessed of devils, and the wise to commune with the unseen world. The ancient empires all claim a divine origin. As to ancient laws, they all came out of this unseen world. These large claims have been accompanied by every conceivable form of absurdity. To establish them the founders originated *Magic*. It was known before the time of the Assyrians, and its early use was connected with priestcraft. Nearly six thousand years ago the Egyptians had magic *seances* in which they were able to perform the decapitation trick. They were acquainted with animal magnetism and hypnotism.

The old magic filled the world with fairies, ghosts, spirits, gods, and devils. Those were the only substitutes for modern science. The spirits of the wronged dead were supposed to remain to torment those who would occupy their deathbeds. Again, the spirits of the living were supposed to be able to leave the body and, in a mysterious

way, do harm to a whole community. Witches destroyed men's fortunes in a night and avenged themselves on their enemies. The number of innocent victims put to death will never be known. In the small city of Treves seven thousand were burned alive, and a bishop of Bom-bury boasted that he had put six hundred to death. In Como one thousand perished in a year, and the Inquisition executed four hundred at one time. Even Blackstone was so dominated by the spirit of the times that he declared witchcraft undeniable. The "dancing mania" that followed the Black Death would indicate that all Europe temporarily lost her balance.

Many wonderful things are reported and verified by reliable witnesses, even in the scientific age of the nineteenth century. Belief in magic and demons, in ghosts and witchcraft, in dreams and premonitions, in supernaturally gifted individuals, has its roots far back of our stream of consciousness. The *will to believe* is a factor in life to which psychology has only recently given due consideration. Reason cannot triumph by showing these beliefs to be inconsistent and unreasonable. The *will to believe* is not bound by the inconsistent and unreasonable. The echo of our ancestors predominates in the minds of the masses. Even though stage magic be openly confessed to be only trickery, yet thousands of wonderstricken souls will not have it so. Many magicians have had the experience of being ridiculed by a whole audience for revealing the simplicity of magic performances.

Necessity of Knowledge on these Topics. What knowledge is of most worth must be answered anew for each decade. Our present social, religious, and psychological

developments cry aloud for some definite knowledge on these subjects. Such knowledge may help at least to clear away the fog and mist from our mental eye; to give us a broader view of the general development of mankind; and to cure us of what Casson calls the *crime of credulity*. Such study will act as an antitoxin against illusions and hallucinations. This presentation can be only suggestive. Those who wish a larger view should read Hoffman's "History of Modern Magic," Evans's "Old and New Magic," Abbott's "Behind the Screens with the Mediums," Tanner's "Studies in Spiritism," and scores of other valuable books.

Interrelation of Magic and Spiritualism. To attempt to define either magic or spiritualism is practically useless. Each individual will insist on defining them to suit his argument. The Standard Dictionary defines magic as "any pretended or supposed supernatural or occult art." Occult is defined as "visible to the spiritual sight only." A phenomenon may have all the force of the supernatural to the onlooker, while to the performer it is simple. The spiritualist will at once object to the joint consideration of these subjects, because modern magic has openly declared the absence of the supernatural from all of its performances, even if the easily gullible refuse to hear it. Not so with spiritualism. But, in spite of protest, magic and spiritualism belong to the same family.

1. They were one and the same in their origin, indeed the old magic was supremely spiritualistic. The first separation of magic from spiritualism came when magic fell into nonpriestly hands and began to adopt the advanced scientific principles of which the public were ignorant.

The Greek and Egyptian temples were storehouses of magic. The art of casting the images of persons, angels, and devils upon the wall, in the air, and especially upon the smoke arising from burning incense; the use of acoustic appliances for conveying the speech of the secretly concealed confederate; the power to make statues automatically pour forth oil; all these and many more were due to the application of scientific laws.

2. *Magicians were also spiritualists.* Magicians have possessed spiritualistic powers, and they always include spiritualism in their histories of magic and consider it but another form of the art. Pinetti gives us the first wonderful exhibition of supernatural second-sight. The great magician Cagliostro caused the spirits of the dead to appear at the banquet table as each man pronounced the name of the one he wished to see. The Frenchman de Kolta, who died in New Orleans in 1903, revived the ancient "black art," and produced all kinds of objects out of space. The great "handcuff king," Houdini, says he might have played a greater part as a spiritualist. The greatest spiritualists and mind readers to-day are but amateurs beside Pinetti, Mrs. Keller, and the son of Robert-Houdin.

Just after the French Revolution Robertson created a whole era of ghost-making. What a psychological moment! One of the representative papers said: "A decemvir of the Republic has said that the dead return no more, but go to Robertson's exhibition and you will soon be convinced to the contrary." Robin was the greatest of these ghost producers. His stage scene of a resurrection in the midst of a cemetery was so impressive that many fainted and others left the house terrified.

3. The *psychological attitude of mind*, favorable to suggestion as a basis of belief, and the *emotional conditions* are essentially the same in both classes of phenomena.

High Points in the History of Magic. As interesting as ancient magic may be, we have already said all that space will permit. The artist Celline records an experience in which he says that a priest, by use of the black art, filled a Colosseum with fierce and hideous devils. The fright it gave him was a lifelong shock.

During the latter part of the eighteenth century there appeared in Germany the greatest wizard of his time — Pinetti. Pinetti was a wonder-worker in many lines. His greatest performance was that of second-sight. He had a slave that freed himself from chains no matter how well bound, and a swan that obeyed his will implicitly.

Read the story of that strange character and faker Cagliostro, the man who claimed to be of a land and time that antedates history, to have been on intimate, secret terms with Egyptian kings, to have been a close friend of Christ and to have walked on the lake with Him; the man who went about with three great secrets — power to heal all manner of diseases, a knowledge of Egyptian Freemasonry, and power to transmute ordinary metals into gold. He went about dressed in silk glittering with gold and diamonds, healing disease and converting kings and cardinals. He was reserved and dignified — even refused with haughtiness invitations to dine with royalty. Cardinal de Rohan was anxious to see him. He sent word back: "If the Cardinal is sick, he may come and see me and I will cure him; if he is well, he has no further need

of me nor I of him." What a psychological stroke! This was sufficient to prostrate the Cardinal at the feet of Cagliostro. We are obliged to confess that strange and eccentric characters, who study the effect of such audacity upon the public, are thereby in a measure able to compel faith in what they say and do. The nature of the individual giving suggestions is a part of the suggestion.

Hoffman pronounces Robert-Houdin the greatest conjurer of any age. He was sincere, honest, high-minded, and intelligent. He simplified stage magic; his little table was a marvel of modern science. It had numerous rods, cords, pulleys, tubes, electric wiring in the legs, ten cords passing out into the stage. He had a "light and heavy chest," which, without being touched, at his command could easily be held on the hand or made so heavy that no man could lift it. He grew an orange tree on the stage which blossomed and bore fruit, which he distributed to the audience. He was the first to produce the famous "Suspension in Air."

What a wonder-worker was Hermann! We still have Keller with his mystifying tricks and expert rope tying, the Davenport Brothers, Anna Eva Fay, Goldin, known as the whirlwind performer, on account of the rapidity of his illusions. Some years ago an eccentric conjurer startled Europe and soon became popular. He wears a mask, conceals his name and nationality, and advertises as the "Masked Man." M. Treway has the ability to appear, without false faces or hair, as several widely different persons. Evans gives twenty-five different photographs of this strange man that look like twenty-five entirely different men.

A Few Explanations of Magic. Is any one so blind as not to see the glaring psychological lessons to be drawn from this material? Many explanations have already been suggested; others you have successfully guessed. We know that the automatic doors, statues that poured forth oil as the incense burned on the altar, the images of persons, ghosts, and devils that filled the temple, were one and all produced by the application of the laws of physics and of chemistry, aided by psychological suggestion and one or more confederates. Pinetti's bullet which he caught in his teeth as it was shot from the gun was managed in one of two ways. The marked bullet inspected by the audience is not shot at him, but a similar make-believe bullet that falls all to pieces; or the marked bullet is pushed down into the gun with a rod having a cavity and fitting tightly over the bullet which is pulled out with the rod.

Cagliostro, like many modern deceivers, undoubtedly had recourse to hypnotic suggestion, aided by an unusual dash of bluff. His first requirement was a mystic religion. Ghost-making is done either by concave mirrors, confederates, unsilvered glass, or by the black-stage performance in which everything that is not to be seen is covered with black, and uncovered as it is needed, while the lights burn dimly to entice the ghosts out. De Kolta's wonderful performances exhibited in Boston some thirteen years ago were so produced. Robin's powerful ghost illusions of the resurrection were produced by an *unsilvered* glass twelve by sixteen feet.

Robert-Houdin paralyzed the Arabians with his "light and heavy box." They believed him possessed of supernatural power. He so informed them and then proved it.

At will he divested the strongest of his physical power. This was the application of the electromagnet before its use was known to the general public. M. Caroly's artificial skull, made mysterious by the claim that it was a copy of the death mask of Cagliostro, contained secret magnetized plates. It skipped about on the table and answered questions put to it by the audience. *Wires in the legs of the table, an operator under the stage, a ventriloquist, and the wonder was complete.*

All automatons have a concealed confederate. All those who free themselves from chains, handcuffs, etc. manipulate the ropes or chains in tying, or in the case of handcuffs have keys which are concealed in various ways. These performers often have many secret pockets in their clothes. Sometimes a key is tied to a silk handkerchief the corner of which is within reach of the teeth. Again, it may be palmed or hidden in the hair or ear. One person was known to have a gold wire concealed under a ring with which he made a key.

Second-sight, later styled telepathy or mind reading, has converted thousands to a belief in occult powers. Now that these stage performances are all explained and exploded, people inclined to such beliefs take refuge in some individual case related by a friend. The first method used in second-sight was a disguised alphabet and number signs. A later method classified all objects that would probably be found in an audience into nineteen different classes. These were memorized by both parties. Certain words, such as "What have I?" gives the list-number, then another sign gives the number in the list. Keller amazed the people and increased belief in the *occult* when he

abandoned all verbal utterances. By *signs* Keller gave the clue to the *group* and the *number* in the group to a concealed confederate, who in turn conveyed it to Mrs. Keller through an insulated electric wire concealed in the sofa on which she lay blindfolded. The process used by Anna Eva Fay and others, by which you write questions on prepared tablets, and by which you retain the questions in your hand, and yet later receive an answer to your question, is such a plain substitution of chemistry for telepathy that I am astounded to find many intelligent people believing in her telepathic power.

It seems that when such wonders can be produced under conditions so simple, the following psychological conclusions are inevitable :

1. That a sane psychological study of such phenomena is a necessary guard to the young and rising generation.

2. Even where departure from the known laws of nature seems absolutely evident, we should preserve an honest but unwavering skepticism.

3. The fact that reliable and even distinguished persons testify to the genuineness of any occult phenomenon is not sufficient grounds for its acceptance.

4. *The simplicity and openness of these illusions reveal the fact that concentrated attention unconsciously excludes other things from the field of vision.* Hence our positive assertions that such and such things did not occur. Some one has reported a spiritualist as saying that when he has the attention of an individual an elephant may pass in front of him without being seen.

5. *Suggestion, as presented elsewhere, plays a large part in all these illusions.*

6. The persistence of belief in magic and occultism as supernatural reveals their ancient origin and power over the soul, and *demonstrates the difficulty which reason and science have in battling with long-established sentiment.*

Spiritualism. The power behind the belief in spiritualism is greater than that behind the forms of magic we have considered. The form and voice of loved ones remain so fixed in consciousness that we feel they must be seen and heard even when they are no more. If any one gives promise of calling them from the other shore, the desire to listen is almost irresistible. When the adolescent hopes one by one fade away, leaving only memory behind, and despair begins to settle on the weary soul, and when a child or friend on whom all lingering hope is built passes into the silent abyss, we will ask the question which science shows no signs of answering: "If a man die, shall he live again?"

A great artist, one of the strongest-minded women I have ever known, who had not the shadow of faith in spiritualism, saw the silent tomb receive her only daughter. After this she sought some ray of hope from a dozen different sources and theories, and finally appealed to spiritualism. She was about to believe that she communicated with her daughter when she discovered that the lady, whose mode of manifestation was through a trumpet, possessed the power of ventriloquism.

Aside from these impressions of the future which seem to compel faith in spiritualism, we observe that life is itself a mystery. Psychology is destined to reveal order in this apparent chaos of bygone ages. Dreams, illusions, hallucinations, insanity, and exceptional mental gifts have all

been sources of belief in powers external to the individual. I have no doubt that the origin of all these apparently transcendent phenomena will finally be found in the normal individual, and that their dependence upon law and order will be demonstrated even to the populace. "Science is new and faith is ancient."

1. *Some spiritualistic phenomena.* To separate spiritualism from telepathy and clairvoyance is possible only in definition and theory. They are mingled and confused not only in the minds of believers, but by the performers. Spiritualism has manifested itself in many forms, such as slate-writing, spirit-photography, materialization of the dead, rappings, communications through a spiritualistic medium, either by voice or by writing.

In order to disprove spirit-photography, I employed a man to scientifically perform and explain this fraud. Such fakery is accomplished in several ways. In this case the performer had taken from a newspaper the picture of a prominent bishop, then ill in South America. From this he had prepared a negative. Although carefully watched he succeeded in placing this plate in the camera, and in reversing the plate to be exposed, so as to bring the two plates together. The lens being removed, exposure secured the second negative. A shadowy effect can also be obtained by pictures on thin paper placed in front of the plate and exposed in the ordinary way.

Slate-spiritualism has been exposed time and time again. Many are the ways of doing it, most of them by clever substitution. In one case the medium becomes impatient, seizes the slate and puts it under the table, asking you to put your hands on it and hold it there. As he takes it

out he adroitly substitutes a prepared slate which he had concealed under the table or in one of his many pockets.

Abbott gives many chemical receipts for preparing messages. A message written with *nitrate of silver* and then breathed upon will disappear. When the slate is treated with *salt water* the message will reappear, not to be erased. There are many methods of writing invisible messages on paper which will appear when brought in contact with heat or even with a blotter saturated with chemicals. Envelopes are rendered temporarily transparent by *colonial spirits*. Are not these devices in line with the common shrewdness of the magicians?

For twenty years I have studied spiritualists and mind readers. I positively know that they employ every available means to secure information — means that the average individual would never think of. More than once I have refused to leave my name, or at least my correct name, and to return at a given date, for I well knew the information would be skillfully used. That the mediums peddle information from city to city about certain persons sojourning there, is undoubtedly true. In one case a spiritualist gave a distinguished man the story of his boyhood days, with incidents that this man did not know of at that time, but verified afterwards. A medium in the quiet Kentucky town in which this man was born furnished another medium in the city in which he was then living, with all that was needed to make a sensation for Psychic Research. They often have one or more confederates who appear to be waiting their turn for a sitting. The confederates draw you out in conversation and later decide to come another day. Then it will soon be time for you — after they report.

There are only about five spiritualistic mediums sufficiently skilled to attract careful study as to content, ways, and means. The others must interest us chiefly on account of the effect produced on the public by such notorious frauds. In attempting to solve some of the laws and powers of *Suggestion* there is no better field than that of *Suggestive Therapeutics*.

2. *Conclusions*. No one can get an adequate perspective for the interpretation of the material presented in this chapter, without bearing in mind the conditions favorable for suggestion as presented in Chapter XII, and the proofs that the *soul is larger than consciousness*. Suggestion and autosuggestion go a long way in accounting for these phenomena. Missionaries and travelers from India constantly report mysteries of the native magicians that seem to have no other explanation. I once found myself completely bewildered by a performance of these Indian jugglers.

If we are to decide everything by reliable witnesses, then there is nothing under the sun that should not become current belief. Blackstone pronounced witchcraft undeniable. In 1731 mysterious powers were developed by visitors to the tomb of a certain deacon of Paris. The visitors were said to become clairvoyants, etc. Soil from the grave was sent to different parts of France and cured all manner of diseases. Reliable witnesses were produced. Louis XV finally ordered the cemetery closed. A witty Frenchman then wrote, "By order of the King, the Lord is forbidden to work any more miracles here."

Why should we believe in all kinds of magic, occultism, trickery, simply because we cannot explain or see how

it is done? More than once a committee of intelligent men from the Psychic Research Society pronounced fraud and trickery impossible, and afterwards discovered them. Eglinton so baffled the committee that some were convinced of his supernatural power. Dr. Davey was certain there was no fraud, but one year later he had studied out a clue to the art himself. He assumed another name, put his skill in competition with that of Eglinton, and surpassed him in every way. He baffled all efforts at detection, wrote messages on double slates, sealed and screwed together, materialized a woman's head floating in air, and a half-length figure of a bearded man.

Shall we accept Mrs. Piper's mediumistic power as genuine because we now seem to have no other explanation? Some say such skepticism would destroy all science. But when a man deals with a current of electricity or an atom in chemistry it is not cunning pitted against cunning. Does the atom say: "Come, let us deceive him. Great gain lies at our door"? The facts of science can be demonstrated over and over again. Why do not these possessors of new forces present themselves at some great seat of learning and demonstrate their discovery to mankind? This is the most suspicious thing about the whole business. Genealogy counts for something, and these beliefs have a genealogy extending back beyond the history of man. Read the history of the warfare of science with this family of superstitions, and from an intellectual point of view at least, you will know better with which to cast your lot.

G. Stanley Hall says: "Only when conditions can be so controlled that, for example, a teacher can announce beforehand that on such a day, hour, and place he will

demonstrate these things, can or will they be accepted by any sound scientific mind. Science is indeed a solid island set in the midst of a stormy, foggy sea, and all these phenomena are of the sea and not of the land."

"The mysteries of our psychic being are bound ere long to be cleared up. Every one of these ghostly phenomena will be brought under the domain of law."

Finally, for a more thoroughgoing treatment of these problems, I suggest:

1. That a complete exploration of the possibility of the development of the senses be made. Much of the mystery involved is due to our inability to conceive the extent to which this development may be carried. A few of these facts have already been given in the chapter on the senses. Vastly more may be learned. The common fortune teller often possesses a power to detect changes in us that we do not know have taken place, and others that we believe absolutely concealed. Cigars, handkerchiefs, and other objects are often found by the blindfolded mind reader through the sensation of odor. Necessity develops power.

2. The amazing possible muscular control in great accuracy, in rapidity of execution, and in exceptional movements and combination of movements must be explored to the limit. To have knowledge of what is possible here, even if we lack the power, explains many a mystery. Without this knowledge we attach some mystery to what is evidently impossible for us. Our powers constitute our unit of measurement. Exceptional development in these physical powers will explain about one half that takes place and no small part of our illusions.

3. A much deeper problem is the relation between muscular activity and thought-power. Every thought tends to work itself out in muscular action. Often conscious ideas, or dimly conscious, and perhaps unconscious mental activity, tend to seek appropriate muscular expression. Is it not possible that this common tendency may reach an exceptional development in certain individuals, even to the extent of manifesting the contents of the unconscious mind? At least it is a field for future investigation.

4. It is only proper to remember that in all such phenomena cunning may be pitted against cunning. People perfectly honest in all other things may play this one game. Our best friends may be employed as confederates. It is a game that many people like. The Fox Sisters, as early propagators of spiritualism in this country, deceived their parents for years.

5. Research and investigation into the power of suggestion will shed light on belief, on faith, and on mental intoxication concerning these phenomena. Personal experience as to its power is a good medicine. Knowledge in this field of suggestion is in its embryonic development, is limited and indefinite, but I predict that it is destined to explain whole systems of world beliefs.

CHAPTER XVI

PSYCHOLOGY IN LITERATURE, MUSIC, AND ART

The psychophysical laboratory has rendered an invaluable service to psychology. It is the chief mark between the old and the new psychology. I yield to no one in appreciation of its value, but for several years my interest has centered in the great storehouse of soul-throbbing psychology and philosophy as embodied in Literature, Music, and Art. Chiefly because here is a wholly unexplored field rich in practical psychology, and, above all, an opportunity to substitute for a lifeless, rule-made, word-grinding, impoverishing method in literature, one of rejuvenation and freedom, one that does not dwarf, but enlarges the soul. The disaster that may be seen on every hand is sufficient reason to force us to take refuge in some other form of interpretation.

In the short space at our disposal we can only hope to suggest some different standard for judging these productions of man, to show that their highest forms are pregnant with psychological life such as we have been considering; to illustrate the difference between *form* and *content*; to demonstrate that the best creations of literature, music, and art are but psychology set to the music of the soul and valuable only in the degree that they call forth a similar response in us, and that no definite, fixed reaction must be expected or demanded.

Inadequacy of the Present System. The individual drilled in the average courses in English may, so far as the formal rules of expression are concerned, become an excellent proof reader; but, like the character in one of Goethe's stories, he has shot out his eyes; he has saved his respectability but he is blind for life. His whole consciousness is turned to the form and to the authorities on that subject. Whether one form is more beautiful and expressive than another is decided not by inner appreciation but by authority. Tolstoi once said: "If it were not so terrible, it would be laughable to think of the pride and self-conceit with which we, like children, pull out our watch, take away the spring, make a plaything of it, and then are astonished that it will no longer keep time."

The student is introduced to rules of various orders, figures of speech, clearness, purity, precision of diction, differences between narration and description, story and novel, sonnet and lyric. Finally, literature is tested by the application of these standards and by the higher laws of unity of time, place, and action, beauty of expression, accuracy of description. These, and not the appeal which the production makes to the life of the individual, are supposed to become the standards of measurement. What would be more instructive than to see some of the great writers confronted with a college examination in English on their own works!

Goethe wrestled with these ancient laws supposed to be necessary to the production of any great work of art. He says: "Like the boy in the fable, I carried my mangled offspring home and threw it at the feet of my father. But I could not give it up, and decided to learn at the very sources these theories, these laws, to which every one appealed."

Finally, after finding that Racine and others were unable to defend or justify their own works when attacked, he says, "Having pestered myself a long time with this talking backwards and forwards, and theoretical quackery of the previous century, I threw them to the dogs and returned to the living fountains of life."

Laws of Grammar, Literature, and Art. The laws and rules of grammar, of literature, and of art have a *psychic and only a psychic foundation*. They are not laws in the same sense that we speak of the laws of physics, chemistry, and astronomy. This is the first lesson that should be learned in any serious study of language, literature, art, and morals. In most cases how directly opposite the process really is! We either fly to the arms of the logical method, and assume absolute distinctions and entities in these fields, or we attempt to claim for these rules, laws, etc. the same validity as for those in the physical sciences. According to the logical method, a noun is either singular or not-singular. If I see it one way and you another, one of us *must* be wrong. "Up!" is either a sentence or not-sentence according as it agrees with the definition of a sentence. "Pippa Passes" either has *unity* or it does not. All is assumed to depend upon the *objective form*. These people have forgotten the origin of the arbitrary definitions on which they build. In morals, acts are assumed to be objectively right or wrong. Those who claim for these laws of literature, art, and morals the same validity as for those in the physical sciences, usually develop this concept in the minds of children by ignoring the variability of possible meaning and the inner-content side.

The more recent discussions of the subject only claim a few general fixed laws in literature and art, but even such have no existence save in so far as the fundamental nature of different individuals, races, and ages, and the modes of conceiving things, correspond. There are no objective atoms in which these laws inhere. Furthermore, laws that can be mathematically applied are free from the influence of the great number of sentiments that are always associated with literature and art. *The laws of literature and art are simply mental ways of conceiving things ; they are subjective and changeable.* So long as human intelligence, feelings, and sentiments vary in different individuals, in races, and at different periods of the world's progress, so long will we be obliged to content ourselves with approximation to any fixed, universal principles. The laws of the physical sciences are objective and are not dependent upon our ways of conceiving them. Two atoms of oxygen will always combine with one of hydrogen to make water, but the formal relations of language have not the same stability.

Ibsen expressed this truth in the best form in which it has ever been put. When his great work "Brand" fell a prey to the word-critics who said he knew nothing about poetry, he replied: "Do not think that I am an arrogant fool. My book is poetry. If it is not it will be. The conception of poetry in Norway shall be made to conform to the book. *In the world of ideals there is no stability.*" His prediction was more than fulfilled. Now "Brand" is everywhere known as one of the world's great pieces of literature.

Even in such a simple thing as the plural of nouns and verbs we find some so absorbed in *form* that a conception

of *content* is almost unthinkable. That the form is only the sign of the *general tendency of thinking* is seldom brought to the surface. If it be said that the student is unable to see this, I reply that this is true only where the individual has clouded his intellect by undue emphasis of *form*. The student learns his rules of English only to discover soon that there are an indefinite number of exceptions. He may also learn that there are divergent views among the so-called authorities. In these two lines of daily observation is the golden opportunity to present the fact that these variations are due to different ways of conceiving the content. On the contrary it not infrequently happens that the teacher believes it her duty to show that other authorities are wrong. Examination of a large number of rhetorics reveals the widest divergence of opinions. Which is right and which is wrong? All we can say with safety is that some may more nearly express the present general usage than others.

What is true in these simpler forms of the arts is more and more evident as we recede from *habit and custom* to what we call *intellectual appreciation and æsthetic taste*. The emphasis of form is more and more dangerous and that of the psychic content more and more important, for *in the world of ideals there is no absolute stability*.

Simple Psychic Elements in Literature. The material presented in this section does not presuppose a knowledge of the literature cited. The selections are chosen because of their special fitness to demonstrate the fact that high-grade literature is genetic psychology, common truth, and an interpretation of human life and conduct.

Practically all the psychic impulses, feelings, instincts, and powers known to psychologists may be found in Goethe's "Sorrows of Werther." Not only is this true, but the climax of the work consists in grasping in a masterful way the great revelation of modern psychology that mind is under laws operating as inevitably as the laws of one's physical being. After describing a girl who is gradually driven to despair, he says: "Shame upon him who can look on calmly and exclaim, 'The foolish girl! She should have waited, she should have allowed time to wear off the impression; her despair would have been softened, and she would have found another lover to comfort her!' One might as well say, 'The fool to die of a fever! Why did he not wait until his strength was restored, till his blood became calm? All would then have gone well, and he would have been alive now.'" Furthermore the compact, living, throbbing psychology in this work presents the proper supremacy of feeling and instinct over intellect. "Meister's Travels" is a storehouse of educational psychology.

How pathetic to see adolescents turned from the psychological elements of gratitude, envy, jealousy, vengeance, shame, pity, love, and tenderness, common to their own lives, as presented in that psychological novel, "Silas Marner," and switched to the stock-in-trade things that must be known about such a work in order to prepare for the time-honored examination! This reduces the child's interest in literature to objective interest in a "pass" and final graduation. The individual psychological effects upon the soul and its reactions are either ignored or suppressed, whereas, this should be the supreme object of all literature. If objective measurement by examination is ever justifiable

in any subjects, it is certainly least justifiable here. *The chief value is subjective stimulus to a deep inner life, and this can only be inadequately observed, never measured.*

In Schiller's first work his whole soul is turned loose to fathom the depth and relations of the feelings. In "The Robbers" many passages are similar to this: "And how, then, must I too go to work, to dis sever that sweet and peaceful union of soul and body? What species of sensations should I seek to produce? Which would the most fiercely assail the conditions of life? *Anger?* — that ravenous wolf is too quickly satiated. *Care?* — that worm gnaws far too slowly. *Grief?* — that viper creeps too lazily for me. *Fear?* — hope destroys its power. What! and are these the only executioners of man? Is the armory of death so soon exhausted? (In deep thought.) How now! What! ho! I have it! *Terror!* What is proof against terror? What powers have religion and reason under that giant's icy grasp?" Here there is an effort not only to compare the strength and operation of the emotions, but also to contrast their power with those of religion and reason.

Does not "Pippa Passes" illustrate a great principle of modern psychology — the power of *unconscious suggestion*? The night before New Year's poor Pippa is looking forward to her only holiday of the year; she hopes all will be well. This poor factory girl spends her day in the simple manner of going about singing the songs that lie deepest in her soul. Early in the morning Sebold and Ottima, whose marriage has just been accomplished by the murder of Ottima's husband, are suffering from a revulsion of feeling. Ottima, however, has just succeeded in diverting Sebold's mind when Pippa passes, singing "God's in his

heaven." All unconsciously this operates on Sebold's stricken conscience and he kills himself, while Ottima offers a prayer and does likewise.

Later Pippa passes Jules, who, by a trick of his fellow students, has had a woman of inferior rank imposed upon him as a wife. He has just found it out and is going to desert her. Pippa passes singing. He suddenly decides to change his mind, to let revenge go, to love her and seek a new life in her own country. In the evening Luigi's mother is trying to persuade her son not to carry out his intention to assassinate the king. She has about succeeded when Pippa passes and sings a song which unconsciously fortifies his wavering purpose. The deed is done. Again, her song prevents Monsignor from carrying out his intention to murder the Intendant of the Cathedral palace.

The day is spent; she returns to her room at night wondering if she could ever touch these people "magnificent in sin." She is all unconscious of the danger from those lying in wait for her, or of the influence she has exerted. And those whose destinies have been sealed by her songs are all unaware of her having had anything to do with it.

Is there any psychology that furnishes us with a better example of the power of unconscious suggestion, that gives better proof that life and conduct are under the power of a great network of forces both conscious and unconscious to us? Does it not give a fair idea of *apperception*? Psychology is a study of human life; *literature is life objectified and set to the music of other souls.*

Browning's great work, "The Ring and the Book," is a powerful literary application of the psychological law

of *apperception*. It is a story told ten times from ten different standpoints. The story shows how each group of witnesses is influenced by past training, social relations, personal interests, prejudice, etc. Münsterberg, in his recent book, "On the Witness Stand," was not the first to show that it is not always possible to tell the truth even when an honest effort is made to do so. It would not be difficult to write a book composed of these simple psychological lessons as taught by the great works of literature. Browning is a conscious psychologist, dissecting the human soul to its minutest parts. In Homer almost the climax of artistic imagination is reached where it appears that the story of a civilization is represented on the armor of Achilles, made by Vulcan. The reminiscence of Achilles, the long speeches that take place between the encounter of an enemy and the fatal blow, the long death speeches, are all keenly psychological and enforce the facts given under *association of ideas*. Dante's dramatic description of the relations and divisions of hell is only an effort to segregate the impulses, passions, and tendencies of men, and to show their relations. He describes a score or more of these. In the study of this great genius it seems a shame to have spent so much energy in quibbling about historic references, inconsistencies as to material, form, etc.

The First Necessity for either the Production or the Appreciation of Literature and Art is Soul-Freedom. The untrammelled activity of the internal life is the first prerequisite to the production or enjoyment of literary truth and artistic beauty. Such truths depend upon the deep, uncorrupted impulses of the soul, and the

highest appreciation of them is secured in the same way. About one genius in a century lays bare his soul, speaks from his inner life, *moves humanity*. But how lifeless this same vital production may become when we try to grind out a fixed meaning with lexicons and dictionaries! Carlyle says of Dante's "Divine Comedy": "As I calculate, it will last yet for long thousands of years. For the thing that is uttered from the innermost part of a man's soul differs altogether from what is uttered by the outermost." May we not in the same sense speak of an *outer and an inner appreciation of literary truth and artistic beauty*?

Goethe tells the whole truth when he says in that masterpiece of all prologues:

Just such a drama let us now compose.
Plunge boldly into life, its depth disclose!
Each lives it, not to many is it known,
'T will interest wheresoever seized and shown.

When Wagner, who throughout "Faust" represents book learning, the word-grinder, objective education that never becomes a tangible part of the soul, is pleading for his profession as a critic, Faust says to him:

Parchment, is that the sacred fount whence roll
Waters, he thirsteth not who once hath quaffed?
Oh, if it gush not from thine inmost soul,
Thou hast not won the life-restoring draft.

The psychological aspect of literature, art, and music must dominate in any soul-inspiring interpretation. Deep must freely speak unto deep, according to the development and experiences of each individual. *Any one standard interpretation of a great piece of literature is detrimental*

and soul-impoverishing when accepted by others as objective knowledge. Let variety and freedom of interpretation abound. This does not mean that in our efforts to interpret a work of art we should not seek assistance from books and teachers. But the interpretation must be *felt*, and not accepted as authority without inner appreciation. The intellectual and emotional development of an individual largely determines what may be inwardly realized. Hence any individual, at different periods of his life, may experience a variety of interpretations of a single work like "Hamlet," and each interpretation be the proper one for him at that time.

Symbolic and Figurative, or Psychological, Nature of Characters in Literature. This has been the central point of my psychological inquiry into literature and art. There is no claim that the suggestive examples that follow are the true or only ones. *They are at least possible ones.* More than a thousand replies from high-school and college students reveal the fact that the majority have no notion of the large symbolic character of the literature they read. It is not inability on their part; it is lack of freedom and adequate suggestion. Ask the average reader of Tolstoi's "War and Peace" or of Schiller's "Wallenstein" what it means. He will begin to tell you of war and bloodshed, of marriages and deaths. Is that all? That Wallenstein is simply ambition pitted against duty, or that the family of Rostovs, in "War and Peace," probably represents a spoiled and decaying civilization put in contrast with the family of Bolkonskys, representative of a simple, honest, unspoiled people who have not yet developed

the shams of an artificial civilization — such possible psychological interpretations seem not to enter the mind of the general reader. The average student might be able to tell you that “William Tell” and “Pippa Passes” both violate at least one of the laws of unity, but he would probably never surmise that the characters in “Tell” represent the simple, sinless, unpolluted people. This psychological fact might prove a helpful solution in accounting for the fact that it has lived and had such great popularity. That the gods of Homer may be conceived as abstractions for the natural forces, I learned long after my college days. I was compelled to wait until John Fiske opened up a whole new world to me by showing that the gods were a complex representation of natural forces, personified ideals, and magic powers. Should we finally prove the historic existence of Priam, Hector, Achilles, Agamemnon, and Helen of Troy, the fact still remains that the poet gives them a symbolic meaning, and for him hate and war exist primarily as a basis of heroic action.

Burns’s “Highland Mary” is not symbolic of an abstract principle such as Beatrice becomes in Dante’s “Divine Comedy.” Dante’s Virgil is human reason, Beatrice divine insight. In Goethe’s masterpiece Faust represents the sum total of the progress and destiny of humanity; Wagner, the formal, book-made side of life and education; while Mephistopheles is *converted* from an objective, roaring lion into the subjective selfishness in man. In the hands of Tolstoi, Napoleon is a symbol of worldly ambition; the simple characters in his beautiful stories are embodiments of moral principles; and in his powerful story of “Master and Man,” Master signifies the superficial self somewhat

akin to Wagner in "Faust," while Man signifies the depths of the human soul as it would be if uncorrupted by sham and hypocrisy. Ibsen never presents a character that is not symbolic and representative of some great idea. In his "Hedda Gabler" her loaded revolvers with which she often aimlessly shoots at the stars are symbolic of her own life loaded with deep instincts and impulses that both attract and repel, and finally explode aimlessly, doing damage but intending none. *Such conceptions are possible and psychologically indispensable to all soul-inspiring interpretations of literature.*

Any student of psychology will at once observe the biological basis of Bernard Shaw's works, while the ordinary reader concludes that he is simply "playing with the people," or that he is intensely immoral. Shaw sees a society warring against the deepest instincts of the race, and speculates as to which must surrender. Stephen Phillips, building on the old Greek stories, puts a modern psychology into them. His little poem "The Woman with a Dead Soul" is surely full of simple psychological suggestions.

When once the mind is allowed freedom to launch out on these speculative interpretations and is stimulated by a little wise suggestion, the process becomes interesting and educative. Many tests with high-school students prove this statement. I have used many stories, but nothing more stimulating than one taken from Nietzsche's "Thus Spake Zarathustra."

This is an ancient parable which Nietzsche puts into the mouth of Zarathustra to the effect that Zarathustra is watching a rope dancer give a public performance, during which a man faints and soon dies in Zarathustra's arms.

Meanwhile the evening falls and the market is hidden in darkness; the crowd disperses, for even curiosity and terror grow tired. Zarathustra, however, sits beside the dead man on the ground, absorbed in thought, forgetting the time. But at last it is night, and a cold wind blows over the lonely one. Then Zarathustra rising, says unto his heart:

“‘Verily, a fine fishing was Zarathustra’s to-day. It was not a man he caught, but a corpse.’ Having said this unto his heart, Zarathustra took the corpse on his back and started on his way. At the gate of the town he met the gravediggers. They flared their torch in his face, and recognizing Zarathustra, mocked him: ‘Zarathustra is carrying off the dead dog; well that Zarathustra hath turned gravedigger. For our hands are too clean for this roast.’

“Zarathustra, saying no word in answer, went his way. Journeying two hours through forests and swamps, he heard the hungry howling of the wolves and felt hungry himself. So he stopped at a lonely house in which a light was burning. And then Zarathustra knocked at the door of the house. Very soon an old man came carrying a candle and asking, ‘Who cometh to me and mine evil sleep?’

“‘A living and a dead one,’ replied Zarathustra. ‘Give me to eat and to drink, I forgot it in the daytime. He who feedeth the hungry refresheth his own soul; thus saith wisdom.’

“The old man having gone off, returned immediately, offering Zarathustra bread and wine. ‘This is a bad quarter for hungry people,’ said he; ‘that is why I am staying here. Animal and man come to me, the hermit. But ask also thy companion to eat and drink; he is much more tired than thou art.’ Zarathustra answered: ‘Dead

is my companion ; I shall scarcely persuade him to do so.' 'That is no reason with me,' said the old man, crossly ; 'he who knocketh at my house must take whatever I offer him. Eat and farewell !'

"Then Zarathustra walked two hours more and trusted the road and the light of the stars ; for he was accustomed to walk by night and liked to look into the face of all things asleep. But when the morning dawned Zarathustra found himself in a deep forest with no road visible. Then he laid the dead one in a hollow tree at his own head, for he wished to defend him from the wolves, and he laid himself down on the ground and moss. And at once he fell asleep, with his body tired but with his soul unmoved.

"Long slept Zarathustra, not only the dawn passing over his face, but the morning also. At last, however, his eyes opened ; astonished Zarathustra looked into the forest and the stillness, astonished he looked into himself. Then quickly rising, like a mariner who suddenly seeth land, he exulted ; for he saw a new truth. And thus he spake unto his heart :

" 'A light hath arisen for me : companions I need, and living ones, not dead companions or corpses which I carry with me wherever I go. But living companions I need who follow me because they wish to follow themselves, and to the place whither I wish to go.' "

Reading into Literature what is not there. Why have we supposed that our chief business is to find out just what the author meant by his work rather than what it means to us ? Of course I will say Shakespeare meant so and so, but always with the mental reservation that I mean

he makes me *feel* that he meant this or that. It is really of no consequence what the writer meant so long as the work furnishes appropriate food for the soul. Nothing has been more antireligious than the apparently never-ending war about original meanings. Again, we have the injunction from Wagner: "To sum up all — To words hold fast," and Faust replies:

Ay, truly, even to the loftiest star !
To us, my friend, the ages that are passed
A book with seven seals, close fastened are ;
And what the spirit of the times men call,
Is merely their own spirit after all.

The greatness of literature and art consists in the fact that they permit us to read our spirit into them. The question is not what some one has said that this or that means, but what depths of soul-life it reaches in us. *What do we feel that it must mean?* Have we an ounce of assurance that any one will ever know what Shakespeare meant by any one of his plays? It is just this standardizing the meanings that must be learned *about* great pieces of literature that has taken us away from the psychology in literature. It has given us the outer knowledge, the superficiality of form, and blinded us to the inner appreciation of deep responding to deep.

Content should everywhere be the student's first concern; after this the *form* and *technic*. Let us just reverse the common order of studying these productions of mighty souls. Some even go so far as to say that it does not matter what a man says, but only how he says it. On the contrary, what he says is always of primary importance. There is no art for art's sake; it is *for humanity's sake*.

The Psychic Atmosphere about Literature and Art.

This subject has already been discussed under the *development of sentiments*. All I need do here is to emphasize its importance in connection with the study of literature and art. Every piece of literature or art tends to develop a psychic atmosphere that no more inheres in the work than the religion of the Middle Ages inheres in the Bible. Time is one of the chief elements in developing this psychic atmosphere. Multiplicity of opinions, comments, and writings about it exercise an enormous influence.

Time and the multiplicity of opinions never bring us any nearer to the original meaning, but rather make it all the more impossible. But the interesting phenomenon is the fact that the more this psychological atmosphere, which does not inhere in the work, but in us, increases, the more certain we feel of the proper interpretation of a great character or work of art.

Some time ago four hundred teachers joined heartily in singing "Lead, kindly Light." I then asked how many thought of the fact that this was McKinley's favorite song and that he asked for it just before his death. Nearly four fifths thought of these things while singing. It is a great hymn, but this is adding a psychic atmosphere to it which does not inhere in it, but which for all practical purposes will come to *appear to do so*. In works of inherent worth we cannot, nor do we want to, separate this purely psychic sentiment from them, but as students and teachers we must recognize this power and refrain from dogmatically asserting that this or that psychic atmosphere is the one original and true meaning. Are the Southern melodies intrinsically superior to Norwegian melodies simply

because we feel their beauty and power more intensely? Is not Shakespeare slightly greater to us by virtue of his having been an Englishman? I am positively sure that some day we will realize this psychic atmosphere sufficiently to cure us of dogmatism in art, morals, and literature.

The Bible is a powerful book in its essence, but that there is a psychic atmosphere usually identified with its contents is evident in a thousand ways. Many are absolutely unable to submit to a critical examination of the Book, and others can never study it as they do other literature. But is there anything in it that prevents such considerations? Does this chilly repellent feeling arise from the Book as a mysterious spirit which it emits, or is it simply the powerful psychic atmosphere that has gradually evolved in all Christendom and, like the invisible ether, pervades everything?

Homer's Iliad is another good example of this psychic atmosphere. Doubtless it is inherently a great work; but suppose it had been found among the Aztecs or South Sea Islanders, and thus been stripped of all its psychic connection with a powerful and interesting people and of all its three thousand years of study, praise, and adoration? How different would it appear!

By what Standard shall we judge Literature and Art?
There are just two standards — *what people tell you about it, and what you feel about it.* Unless you tie yourself to what people *say* about these works of art, there is absolutely no law save the way in which they appeal to human hearts.

But some one says, "If the cultured and learned decide that any one class is of the highest order, should not this be taught to everybody?" Yes, provided they can be brought to an inner realization of the fact. But here is exactly the stumblingblock in our modern conceptions. If this "highest" must be learned as a mere rule, a dogma, or a mere jumble of words, positively no! It will then only be one of the means of blinding the individual to all internal truth and of leading to a loss of faith in his own inner life.

Just at the present time we are passing through a parallel condition concerning morals and religion. There is a slowly increasing number of so-called cultured and learned people who hold a radically different idea of morals and religion from that held by the masses. Feeling that this interpretation is the truth, some unwise pedagogues believe it should be made the standard for everybody. But suppose the masses can only absorb words and definitions. What good will come from having them hypocritically repeat these while still holding other beliefs? Personally I have reached the point in life when I will accept what people tell me about literature, art, and music just in so far as it appeals to me as being a conception with warmth and life.

No reader can be more conscious of the inadequacy of this presentation than is the writer. I regret that space does not permit a wider and more definite practical application of this suggested method. There are many signs indicating that this is the coming method in literary study. It was encouraging to listen lately to a great popular musician, who in a public lecture took this position in regard to the judgment and appreciation of music.

Music and Art. Of course art in its broad sense includes both music and literature. With the Greeks, music and literature were the same ; however, it is desirable to direct specific attention to these two topics. All the general observations herein presented apply also to these productions. The products of geniuses will take care of themselves ; it is our impoverishing manner of handling them that needs attention.

1. A soul-inspiring study and appreciation of art cannot be produced by the application of formal rules and simply a knowledge of the true relations of color. No painting such as "Breaking Home Ties" will ever be judged chiefly on its conformity to rules. Stand with me in Captain Howland's workshop for a few minutes. He presents for us a simple scene of nature. We apply our rules, and to ourselves pronounce agreement or disagreement. I then ask the artist how long it takes to produce such a work. He replies, "Not long after you have worked out the conception." *Conception!* No one has yet seen any conception. We have seen only one ferocious animal on the carcass of an animal many times larger than he can eat, but warding off other starving animals. The artist informs us that this represents *greed* as found in human life. At once there is a stirring of the soul, a revival of memories, of associations, and a speculation about human destiny. These change the whole aspect of our appreciation. It is just these psychic associations and the general psychic atmosphere ignored by the formalist that constitute the soul-stirring elements. In short, it is possible for students drilled in objective knowledge to be able to talk intelligently of art and to copy with great accuracy, without the deep expressive side of life being moved.

2. Rhythm is the fundamental power in music, and the mystery of its influence over the soul is hidden in the unknown relation between physiology and psychology. Here the psychological and formal methods come definitely into conflict. I once saw a music teacher display the work of some eighth-grade pupils and then, with an air of triumph, declare that they had performed the most difficult thing in music. I naturally said, "What of it?" It was done in the same spirit that a plumber would do a difficult job of plumbing. Hanslick, representing the formalists, writes of music in the same spirit as many authors speak of *rhetoric*. He declares its aim to be *formal, logical, scientific perfection alone*. On the other hand Spencer considered it "glorified speech," expressing the deepest cadences of the emotional life. In line with this, Wagner looked upon music as the emotional language of the human heart. Richter said of it, "Thou speakest to me of things which in all my endless life I have not found and shall not find." As one writer notes, it is psychologically interesting to learn that this controversy, with its objections and criticisms, generally occurs over a production after the power of it is felt and accepted.

Perhaps the formalistic attitude of mind was well expressed by a music director who, in commenting on a great opera singer, said, "I am always listening to hear how well she strikes the high and low notes." That is not soul appreciation; it is appreciation of skill. When these experts revile the public because not every one recognizes the skill or is hypocrite enough to pronounce such a "feat" good music even if it does not stir the soul, they are ignoring the fundamental end of music. What can be the object of

teaching music *except to feed the soul-life within?* Individual differences and variations in ability to appreciate music must be recognized. How many great productions in music, just like the painting above mentioned, appeal to us from an entirely different standpoint as soon as we get the *conception* lying behind the perfected form? The highest musical art must in some way be related to psychic experiences and feelings of our own in order to be appreciated *inwardly* and aside from artistic skill. *Then music becomes the voice of past soul-life echoing in our being, inspiring us and uniting us to the universe as nothing else will.*

CHAPTER XVII

REFLECTIONS ON THIS HUMAN CONFLICT

Summary of Previous Pages. Before presenting the reflections on this daily conflict, let us briefly recall the conclusions of the foregoing pages. We have considered a network of forces producing or constituting what we call human life. We first discovered that *The Will to Live* is absolutely universal and necessary in order that the struggle of life may exist at all. We found that the *Instincts* are the basis of action in both animals and man, that they are often the source of conflict in individual life, that *Imitation* develops and confirms these instincts and permeates the whole of human activity, that *Habit* sooner or later drifts us all toward a given destiny. We were compelled to give a large place to the *Feelings* as a power in human life and as proof of a complex and divided soul. The study of *Apperception* gave us some idea of the influence of past experiences on present interpretations, and showed that into every present act of life every past act tends to enter. We then gave our attention to the great *Evolutionary Process* by which this network of life has been brought to its present condition.

Then we directed our attention to the consideration of the more material and personal side of the same problem of human life. *The Nervous System* was found to be the only possible agent through which these forces can be manifested.

Its limitations limit our possibilities. *The Senses and their Development* constitute our only source of knowledge of this external world, and any imperfection here means imperfection in the higher powers of man. *The Association of Ideas* amalgamates this complex, heterogeneous life into some kind of unity which we call personality. *Memory* we found to be the storehouse of the mind and to be intimately related to *Association of Ideas* and to *Imagination* which may be dangerous or highly beneficial, according to its line of operation. *The Problems of Heredity and Environment* gave us some idea of how infinitely complex the whole process of life is, and how difficult, almost impossible, the road to consistent conduct is. A study of the *Thinking Process* revealed the chief guiding power of man, and the source to which we must look for true freedom, unity, organization, and progress. Our consideration of *Will* led to the conclusion that this power is simply the resultant of all the forces operative in an organism at any one time, that the freest individual is the one with the best-organized stock of ideas giving him the possibility of many different lines of action.

Suggestion gave us a glimpse of a self larger than our conscious self and of our intimate dependence on and relation to each other. *Social Psychology* suggested larger interpretations of social institutions and of history. *Magic and Spiritualism* drew back the veil of the past and revealed the great game which we all in some degree are inclined to play with each other, and a psychic stream whose source is in an unseen world. The brief consideration of *Literature, Art, and Music* aimed to reveal the fact that the best of these creations are only psychology set to the music of the soul, and valuable in the degree that they call forth this response.

In this great *web of life* all these forces, powers, faculties, tendencies, etc. are related and form some kind of unity. To what end do we struggle? In what degree, if at all, do we realize the end of our struggle? What is and should be our attitude toward life? What are the practical educational inferences concerning our relations to each other? Is consistent conduct possible in the midst of all these forces operating in man? Space permits only a few suggestions on the purely psychological aspects of daily life, as lived by people round about us. With absolute ethical answers built on words and definitions we can have nothing to do. The following reflections are for practical purposes only.

Pursuit of Happiness is everywhere the End of Action so far as it is directed by Consciousness of the Individual. As we have already seen, the social and biological forces may be directed to ends other than individual happiness. These hidden forces are so adapted as to lead to our general welfare if they are properly obeyed. If it be objected that the highest end of conscious action is not individual happiness but obedience to duty, we reply that obedience to duty is simply the *highest condition of happiness for that individual*. His life is so unified about the idea of duty that he intuitively perceives that he cannot be happy without obedience to this unified power. I do not say that the end of our existence in this world is happiness, *but that so far as our actions are directed by conscious effort we aim at happiness*. What a pathetic blunder we usually make of it! Many of the forces which we have considered divide the soul in its pursuit of happiness.

1. *The unified soul that acts with the whole being is the happy one.* Happiness is more lasting than pleasure. How can any one with a soul torn asunder by a dozen different and contradictory aims, hope to be happy? He may enjoy many fleeting pleasures, but substantial happiness is impossible. In a fit of enthusiasm, after visiting the homes of some of the mighty dead, a traveler penned this sentence, "O for the moral courage of Socrates, the wisdom of Aristotle, the comprehensive world view of Goethe, the artistic taste of Phidias, the firmness of Napoleon, the kindness of Schiller, the goodness of Savonarola, and the luxurious estate of Potsdam in the midst of which grandeur this sentence was penned!" So far as happiness is concerned such a conglomeration of ends can appear good only on paper or to the imagination. Legitimate desires, realized in part or in full, bring happiness, and such ambitions are the prime condition of progress; but happiness, or the highest and most lasting pleasure, comes from training and unifying our moral nature to some definite, useful purpose in life.

Look at this problem in the simple conditions of life. Is there anything more pathetic than daily to see people longing for social preferment as a supposed road to happiness, yet either unable or unwilling to pay the price in the necessary expenditure of time and money; others lamenting the harsh words, slights, and bitter treatment of mankind, while these things just ooze through their whole being; others struggling to accumulate this world's goods, yet daily complaining of being tired and worn-out; still others fighting some noble instinct like motherhood, in order to realize some foolish ambition; millions of

others charging even their friends with having the "easy time" in life, and wishing the impossible thing of *changing places*? Such complaints remind one of the fable in which each individual threw in a heap his burden of whatever kind, until the pile grew into a mountain; then each took up what he liked best, but ere long all the burdens were again tumbled into the heap and each took up his *own* and departed. Such individual misery is largely a matter of temperament. The individuals think it is in the conditions. Conditions may slightly modify results and the direction of the complaint, but *conditions* can never be the *proper* ones for such temperaments. A diversity of instincts and impulses are brought into conflict, and apparently small things stand in the way of the proper unity of life and action. Du Bois says, "Man is the only animal who does not know how to live." It is George Eliot who says, "We are born in a state of moral stupidity."

2. *A spirit of aimless restlessness* seems to hang over modern civilization, until the wisest seriously ask what we have gained by our boasted progress. The development of a highly complex society has greatly multiplied human wants and made their gratification so diverse and so apparently impossible that there is a reaction from any definite, fixed ends. However, there must be faith in the *possibilities of life*.

It is not he that crieth aloud, but he that *doeth* that shall enter into the "kingdom of heaven." "To act and to love," says President Jordan, "are the twin functions of the human body and soul. To refuse these functions is in a sense to die while the body is still alive, to make misery out of existence." He further gives us this wholesome

advice: "Thoreau says that 'there is no hope for you unless this bit of sod under your feet is the sweetest to you in the world, in any world!' Why not? Nowhere is the sky so blue, the grass so green, the sunshine so bright. What then are you doing under these blue skies? The thing you do, should be for you the most important in the world." Stephen Phillips gives a powerful description of mere mechanical existence without feeling-life in "The Woman with a Dead Soul." In like manner, with great dramatic effect Ibsen, in one of his works, discovers a corpse amidst the thronging passengers of a great vessel.

To dream about happiness is a sure way never to have it. Do not become an idle dreamer *about* happiness. Happiness never comes to those who simply dream about it. If their ideal world were thrust upon them without their *growing into it by their own efforts, they could not realize it or be happy in it, and would be longing for something else.* Purposeful, well-directed discontent is holy, but aimless restlessness is satanic. Many would-be reformers are like one of Ibsen's characters, who aimlessly shoots at the stars simply because she is restless and knows not what else to do.

Human Life is Inconsistent and Contradictory. The primary causes for this condition of human development are *the conflict between the primitive instincts and the intellectual ideals, and the intellectual effort to hide from observation one's selfish ends.* Plato gives us a good example of the latter when he declares that the most unjust of all men must appear to be the most just of all men in order to have full opportunity to practice injustice. The fact of

this inconsistency is not to be regretted so much as the innocent ignorance under which each recognizes inconsistency in others but not in himself. Much of this apparent blindness, however, is assumed and hypocritical, but that can be endured; it is not pathetic, it is comical—it is part of the show. A man may see that a given line of action, pursued by all, would ruin the community or the world, and consequently himself also. He may openly preach veracity, and lie with discretion. But the pathetic, blind inconsistency of which I speak is the main source of *impatience* and *intolerance*. Knowledge concerning the conditions of our fellow men should beget *patience* and *tolerance*.

Nowhere does this blind inconsistency dominate the individual so much as in religion. Here the difficulty is due to several causes. Prejudice and apperception, as we have seen, tend to blind men to all interpretations save the one that suits their ends. Logic is applied to other men's beliefs, feeling and faith to our own. Each individual is inclined to proclaim the inconsistencies of another's religion while he remains stupid concerning those of his own. What is still worse, seeing these inconsistencies so distinctly in others, he believes them dishonest in their profession of faith. We have been preaching religious tolerance for five hundred years, and yet in many cases even the elect, who preach fine sermons from such texts as: "Forgive your enemies," "Now abideth faith, hope, and charity," will become your unalterable enemies provided you honestly question their beliefs. O Consistency, where art thou? Fortunately the world is gradually driving away this black night which still hovers over our

intellectual operations and judgments of our fellow men. Only he who is on the heights can see the rising sun of *intelligence* and *tolerance*.

I grew up in a community of Baptists, Methodists, and Presbyterians. When twelve years old I had never seen a Jew or a Catholic, but I had heard so much about them that I could not see how a Jew could have a soul, or a Catholic good sense. About that time my first stay in a large hotel was blessed by the presence of several intelligent men. I discovered that they represented various beliefs. But no psychologist can imagine my mental shock when I learned that my model of polish and intelligence was a Catholic. That the children, whether of Mohammedans, Jews, Catholics, or Protestants should breathe an atmosphere which unconsciously develops such a feeling of intolerance toward other people is pathetic. The majority will remain blind to their inconsistency for life. I am compelled to quote that powerful sentence from Rousseau, "O men, be humane, be humane to everything not alien to mankind; it is your highest duty." After a study of the foregoing pages you must be convinced that no one honestly holding a belief should be punished or censured for it. If he is wrong he is to be pitied and aided. Who can but admire the courage of John Stuart Mill when he says, "If God sends me to hell for believing only what my best judgment and sense compel me to believe, then to hell I will gladly go"?

Again, inconsistency in religion, as well as in other matters or phases of experience, is often due to the creation of ideals far beyond the possibility of realization. With exact logical argument a man expands his moral

maxims into an ideal state of affairs which he finds no one, not even himself, able to attain. Not all who preach one doctrine and live another are hypocrites; they are simply unable to make the idealistic and realistic harmonize. Ibsen is correct when he repeatedly shows with dramatic force the effect of carrying a multitude of *dead ideals* — *ideals that are not even vitalized by the possibility of attainment*. They constitute our make-believe righteousness which gives a dual aspect to conduct and life. I in no wise depreciate the value of ideals either for the individual or for society. As elsewhere shown they are powers in forming character when they bear the proper relation to the realistic; but a consciousness of this conflict between the realistic and the idealistic explains many contradictions and inconsistencies of life.

Needed Reforms in our Moral Education. Let us say once more that unless the end of life is ethical and moral, so far as we are concerned, it has no meaning. What does it all mean? What will be the outcome of what I do to-day? to-morrow? Is life only vanity and vexation of spirit? These are questions that come down the ages.

1. *A sound knowledge of biological laws must modify the old ideas of punishment.* The inevitable laws of life can be observed and studied everywhere, and everywhere we can ascertain the truth of the statement that "Whatsoever a man soweth, that shall he also reap." Life is not any easy thing, made and unmade at the command of some mystic power called will. We have already seen how life, intellectual and moral, is gradually shaped by the forces we have been considering. Proper foresight and

education may give guidance to these forces, but we cannot escape their influence. We must eradicate the idea that things are right or wrong irrespective of conditions, relations, and effects. They are right or wrong only because they advance or interfere with the highest development of the individual and of humanity. It is a disgrace to our system of education to read in medical authorities of the many ills of humanity and the wrongdoing, which arise from ignorance concerning the vital laws of human life.

In our efforts to control and protect these moral forces we must work in accordance with the psychological laws of life. McDougall suggests four stages in the operation of these forces by which character is gradually evolved. The first is the stage of instinctive behavior, modified by the influence of immediate pains and pleasures. The second stage is that development in which instinctive impulses are modified by the anticipation of material rewards and physical punishments. This would suggest to us the low order of rewards and punishments in the discipline of children. There is also another form of this discipline, superior to that administered by individuals. I refer to the material rewards and punishments of environment and social conditions. This is the clearest application of the Spencerian doctrine of *punishment by natural consequences*. Of course the doctrine is capable of a much wider application. Nature never fails to punish us for violation of her laws.

In the third stage of this development conduct is controlled mainly by the anticipation of social praise or blame. We now rise to a more psychic and moral plane of conduct. Under *Social Psychology* we learned how powerful are the

social laws, customs, and traditions in compelling the individual to certain lines of action. Let each reader examine his own life as to how far his conduct is dominated by this power of *social praise and blame*.

The last and highest form of this creative personality and character is that in which *conduct is guided by ideals which enable men to rise above social praise or blame*. This is the highest life we know of for humanity. This inner sincerity and serenity of soul is also the surest road to abiding happiness. "My peace I give unto you: my peace I leave with you." But it is an inner peace, *an inner consciousness of individual worth*. There may be many ways suggested for securing this desired inner state, which the Greeks placed above everything else; but from a psychological viewpoint virtue and sincerity of purpose are paramount. Hopeless is the peace of the one who depends upon the opinions of others, upon position in life, or upon worldly goods.

A man once said to me, "The sincere individual is always misunderstood." Perhaps there is more truth in this apparent paradox than we at first think. But the sincere man has an inner reward which the insincere knows not. I have often been touched with sympathy for the great souls of earth because they were not understood even by their nearest friends; but Schopenhauer's keen saying applies to them, "He who is on the heights must of necessity be alone." They were too deep and honest to be understood. It takes *courage*, and perhaps some suffering, to become reconciled to being misinterpreted. Mæterlinck says, "Grief is love's first food, and every love that has not been fed on a little pure suffering must die." I am

inclined to think that this is also true of other noble and deep sentiments of human life. It is vain popularity that divides the soul and stands in the way of sincerity. "Nothing distresses us when we have ceased to fear it," is a wise saying of Seneca.

2. *In this process of creating moral personality many stop at various levels.* Realizing that we are under the power of many inner and outer forces, every means possible should be used to secure *self-control*.

Personality is partly a matter of temperament, of strength, of instincts, and of native constitution; but it is nevertheless subject to unlimited training and development. This side of it depends chiefly upon purposes and ideals, but we often forget that these repeated as bare words and empty mottoes have little power. They must be built into and become a vital part of one's nature.

Plato's degraded democratic government is representative of the individual who allows all his passions, appetites, and sentiments to vote on all his conduct. Poverty and luxury are the two extremes where self-control is least readily developed. The inordinate love of pleasure and of the easy life is ruining the children of the upper classes. On the other hand, under the sting of distressing poverty and the fierce struggle for existence self-control is more easily imagined than exercised. If James's *moral equivalent for war* could be carried out, if we had some way by which the sons of the wealthy could be compelled to serve the nation a certain number of years, not necessarily in war, but in administering to distressed humanity, in liberating entombed miners, in rebuilding a city destroyed by disaster, in rescuing stranded vessels, etc., the gods could never bestow

a greater blessing on such youthful lives, to say nothing of the immense good resulting to humanity. It would give them a sense of moral worth.

For those who desire but fail to attain self-control permit me to offer a few practical suggestions. What troubles you most is not the lack of certain things, *but the belief that you cannot be happy without them*. Are you sure that their possession would make you happy? Certainly to desire and not to obtain makes you unhappy. "Yes," you say, "that sounds well, but I cannot help desiring." You devote much attention and energy to other things. Have you ever devoted any to this self-discipline? Have you ever even reflected upon it? Have you ever read books upon it? Have you ever read the lives of others who have succeeded? Have you ever summoned your pride to war against your vanity? Do you see Socrates standing in the market place enjoying the beautiful things because he does not want them? Do you hear the dying words of Spinoza, "I thank God that I never smiled on any man that I might use him?" Some one has been invited to a dinner and you have not. Have you paid the price, which is usually flattery and subserviency? If not, be ashamed to still wish for it. You are fighting for the best seat in some public place; of your own free will let the other weary individual have it once, and observe how noble the feeling that follows. Finally, have you ever torn envy from your heart? If you have not, it will torment you to the day of your death.

3. *The use of social blame as a means of persecution and compulsion often breeds a spirit of faultfinding damaging both to society and to the individual.* It is superficial and

mainly the expression of a personal attitude. It deals not with principles or vital things, but with the petty and non-essential. It extends from the *faultfinding* of nation with nation, down to the destruction of peace between private friends. In public life it often saddens the lives of many noble citizens and prevents thousands of honest people from taking part in public affairs. *It is a menace to our public welfare, to our peace and happiness.* We do not decry well-grounded criticism, but this faultfinding spirit that leads to monstrous inferences from meager, insignificant data is an abuse of our modern freedom. From a psychological viewpoint we must not overlook the immeasurable damage done the faultfinder himself. His mind is poisoned with a pessimistic attitude toward mankind, which will, however, be bad enough from contact with the actual facts of life. *We need good intentions, veracity, honor, and honesty.* Socrates defined a lie as the misrepresentation of the truth with an intent to injure. Why should we not define *veracity* as the representation of the truth with an intent to benefit? Does not decent Christian respect for others forbid the publicity of even the truth save in such a manner as to produce good results? In the language of Buddha, "Tell the truth with discretion." It would be so in everyday life if vengeance, hate, jealousy, and narrow-minded selfishness did not crowd out the notion of other people's welfare. Plato is right: "The wise man punishes not because some one has sinned, but that he may sin no more."

Examine another phase of this chronic *faultfinding* wherein the individual faultfinder is the chief sufferer. Psychologically it would appear that there are people for

whom Nature never grew a tree straight enough, never made a suitable abiding place on earth, nor ever endowed a child with the proper combination of powers. With these people the fundamentals are lost sight of and they wear their lives out over the irremediable and nonessential. Some individuals develop this spirit to an excessive degree. Their peace of mind is continually destroyed by some relatively insignificant thing which they are powerless to remedy. Of course the sad thing is, they cannot see that it is *relatively insignificant*.

4. *The evolution of moral ideas and practices should be a stable part of every one's education.* We must realize that morality is a world-wide movement, that it did not originate as an arbitrary command, but that it is the expression of the fundamental longing of human hearts everywhere, and that the struggles and endeavors of man have at all times brought to the front this deep current of life. I will even be bold enough to suggest that a series of readers, consisting of the best in all the religions of humanity, omitting nothing that would be uplifting, whether it be found among the Hottentots, the Hindus, the Egyptians, the Greeks, or the latest developed religions of our day, should be prepared for use in our schools.

All through this volume and especially in the chapters on *Apperception*, *The Feelings*, and *Social Psychology*, prominence has been given to forces and conditions, both external and internal, that unconsciously shape human destiny. Of what value is such knowledge? How can it be used in intellectual and moral education? Certainly no one will deny that such knowledge adds to our comprehension of life and conduct, and ought to lead to a better

consideration and regulation of conduct. Its practical application in an educational way has been given some attention by every great educator since the days of Confucius and Plato. The latter made clear that the development of æsthetic appreciation is largely a matter of unconscious absorption. Even to realize that the deepest and most powerful part of education can never be measured in terms of objective consciousness would lead to a fundamental modification of our curriculum and of our methods. Waldstein and others have suggested many practical ways of adjusting life to these subtle forces. Solid foundations are laid out of sight.

5. *Finally, we must trust the inner nature of the child and build on it ; we must realize that instincts, innate tendencies, feelings, and desires — these and nothing more are fundamental in character.* This is the most difficult step in the transition to our modern idea of morality. It must come ; but it will change our whole attitude toward crime and immorality. To realize this is to transform a large part of our course of study and revise our methods. That noted physician, Dr. Osler, in his lecture, " Science and Immortality," says : " The remarkable development of the material side of existence may make us feel that Reason is King, with Science as the Prime Minister, but this is a most short-sighted view of the situation. To-day as always the heart controls not alone the beliefs but the actions of men, in whose life the head counts for little."

Our souls should vibrate in unison with the heart-throbs of humanity. Let us not call ourselves cultured unless our feeling of responsibility has increased in proportion to our attainments in life. The tense echo of " back to nature,"

as seen in Rousseau, Goethe, Tolstoi, Ibsen, Neitzsche, and others, means that these geniuses felt the presence of two currents of life which never mix. Who, when he is honest, does not feel that a large percentage of the morality in his own life and in that of others is not genuine and must sooner or later collapse? Laws, forms, artificial customs, etc., get so far in advance of the deep impulses of life that we can no longer bear the strain.

When the whole atmosphere is full of deceit, hypocrisy, lying, and efforts to take advantage of others, how much have we a right to expect of children? To express my faith in children I can do no better than to quote that powerful sentence from Goethe's "Sorrows of Werther": "Yes, my dear Wilhelm, nothing on this earth affects my heart so much as children. When I look on at their doings; when I mark in the little creatures the seeds of all those virtues and qualities which they will one day find so indispensable; when I behold in the obstinate all the future firmness and constancy of a noble character; in the capricious, that levity and gayety of temper which will carry them lightly over the dangers and troubles of life, their whole nature simple and unpolluted — then I call to mind the golden words of the Great Teacher of mankind, 'Unless we become like one of these.' And now my friend, these children, who are our equals, whom we ought to consider as our models, we treat them as though they were our subjects. They are allowed no will of their own. And have we, then, none ourselves? Whence comes our exclusive right? Is it because we are older and more experienced? Great God! from the height of thy heaven thou beholdest big children and little children, and no others."

Now we are at the close of this book, which lays no claim to completeness. *If it has awakened interest and stimulated further study of these problems, its end is accomplished.* In the educational, ethical, and practical activities of life I hold that any principle carried to its logical extreme is self-contradictory. Formal logic and life never did and never will square with each other. All universal principles, such as *love your enemy as yourself*, defeat their own end when applied without regard to conditions and with that universality which formal logic demands. To know life, especially human life, in its deepest and best sense, to the end of making it fuller and richer should be the end of all study and striving.

INDEX OF AUTHORS

	PAGE
Abbott, Lyman. Outlook, November 11, "Why I am not a Universalist"	277
American Book Company (Publishers). Fig. 8	118
American Journal of Psychology, 1892	160
Appleton and Company (Publishers). Fig. 6	112
Ayers, Edward. Harper's Magazine, September, 1913	151
Bateson. Material for the Study of Variation	151
Bergson. Creative Evolution (p. 5)	245
Bernheim	239
Betts. Mind and its Education (p. 207)	89, 90
Bragg. School Science and Mathematics (Vol. XIII, No. 1)	148
Bramwell. Hypnotism, its History, Practice, and Theory	235, 242
Brinton	20, 34, 206
Brinton. Basis of Social Relations	229
Browning. Pippa Passes	309
Browning. The Ring and the Book	197, 310
Calkins. First Book in Psychology (pp. 216-232)	273
Campbell. School Science and Mathematics (Vol. XIII, No. 1)	148
Carlyle	312
Carmon, A. P. School Science and Mathematics (Vol. XIII, No. 1)	148
Carus. Gospel of Buddha	95
Darwin. Origin of Species (last edition)	106
Darwin	24, 92, 104, 110, 202
Davidson. History of Education	253
De Vries. Evolution by Mutation	104
Dewey, John. How we Think (p. 171)	228
Dewey, John. How we Think (p. 189)	230
Drummond	15, 51, 71
Du Bois	155, 251, 329
Ebbinghaus	195
Einstein. School Science and Mathematics (Vol. XIII, No. 1)	148
Evans. Emotional Ethics and Animal Psychology (p. 177)	12
Evans. The Old and New Magic (p. 88)	290, 291
Evans. The Old and New Magic	182, 293
Fechner	141
Fiske, John. Excursions of an Evolutionist (p. 150)	106
Fiske, John. Excursions of an Evolutionist (p. 148)	110
Forbes	14
Fraser	159
Freud. Die Traumdeutung (second edition, Vienna, 1909)	176, 177
Freud. American Journal of Psychology (Vol. XXI, No. 2)	246, 247
Galton. Inquiries into Human Faculty (p. 85)	181
Galton. Inquiries into Human Faculty	190, 200
Ginn and Company (Publishers). Figs. 1 and 5	83, 87
Goethe. Meister's Travels	50, 308
Goethe. Sorrows of Werther	48, 55, 308, 341
Goethe. Faust	93, 312, 318
Goethe	15, 47, 216, 227, 304
Hall, G. Stanley. Adolescence (Vol. II, p. 59)	47
Hall, G. Stanley. Adolescence (Vol. II, pp. 129, 142)	16
Hall, G. Stanley. Adolescence (Vol. II)	122
Hall, G. Stanley. Introduction to Tanner's Spiritism (p. 31)	300
Hall, G. Stanley. Problems of Education (Vol. I, pp. 70-90)	108
Hall, G. Stanley. Problems of Education (Vol. I, pp. 120-122)	73
Hensoldt	261
Hering	182
Hodge. Nature Study and Life (p. 468)	98
Holland, J. G. The Sins of the Imagination	194
Hope, Lawrence. India's Love Lyrics	57
Ibsen. Brand	306

	PAGE
Jabson	14
James, William. Human Immortality	181
James, William. Psychology (Vol. II, p. 45)	189
James, William. Psychology (Vol. II, p. 449)	270
James, William. Psychology (Vol. II, p. 487)	272
James, William. Psychology (Vol. II)	20
James, William. Varieties of Religious Experiences	58
Jordan, David Starr. Footnotes to Evolution (p. 286)	113
Jordan, David Starr. Footnotes to Evolution (p. 269)	9
Jordan, David Starr. Philosophy of Despair	57
Jung. American Journal of Psychology (Vol. XXI, No. 2, p. 248)	178
Kirkpatrick. Genetic Psychology (p. 246)	181
Le Bon. The Crowd	234, 258
Le Bon. The Crowd (p. 54)	261
Livingstone, E. & S. (Publishers). Figs. 7, 12, and 13	116, 123, 124
Locke, John	154
London, Jack. The Call of the Wild	208
Maeterlinck. Voice of Silence	109
McDougall. Social Psychology (p. 103)	23
McDougall. Social Psychology (p. 124)	52
McDougall. Social Psychology	67, 334
Mercier. Psychology Normal and Morbid (p. 60)	216
Mercier. Psychology Normal and Morbid (p. 46)	131
Mill, John Stuart	332
Miller. The Psychology of Thinking (p. 82)	182
Miller. The Psychology of Thinking	267
Morgan. Habit and Instinct (pp. 254, 256)	8
Morgan. Habit and Instinct	20, 23, 36, 165
Nietzsche. Thus spake Zarathustra	216, 227, 315, 317
Paulsen. Introduction to Philosophy (p. 195)	106
Prince	252
Read. Introduction to Psychology (p. 123)	161
Ribot. Psychology of Emotions (p. 63)	57
Ribot. Psychology of Emotions (p. 58)	59
Ribot	67, 186
Richter	323
Romanes. Animal Intelligence	181
Romanes. Darwin and after Darwin (Vol. I, p. 261)	98
Romanes. Darwin and after Darwin	9
Ross. Social Psychology (p. 118)	28
Ross. Social Psychology (p. 79)	260
Rousseau	34, 222
Ruskin	49, 199
Saleeby. Parenthood and Race Culture (p. 122)	203
Saleeby. Parenthood and Race Culture (p. 145)	211
Schiller. The Robbers	309
Schopenhauer. World as Will and Idea (Vol. III, p. 310)	13
Schopenhauer. World as Will and Idea (Vol. III, p. 313)	16
Scribner's Sons (Publishers). Figs. 9 and 10	120, 121
Sidis. Psychology of Suggestion (p. 329)	260
Spencer. First Principles	160
Spencer. Principles of Psychology (Vol. II, p. 578)	67
Spencer. Principles of Psychology (Vol. II, p. 487)	51
Spencer. Principles of Psychology (Vol. II, p. 590)	57
Stern. Beiträge zur Psychologie der Aussage	197
Tarde. The Laws of Imitation	27, 28
Thorndike. Educational Psychology (p. 45)	213
Tolstoi. War and Peace	266
Upstruyt, A. (Publisher). Fig. 11	122
Vaschilde, N. Le Sommeil et les rêves	176
Wallace, Alfred	94
Ward. Pure Sociology (p. 107)	51
Washburn. The Animal Mind (p. 272)	181
Wellington	34
Wesley, John. Compendium of Natural Philosophy (Vol. IV, pp. 90-109)	96
Witmer. Analytical Psychology	78, 83
Wundt	216, 244

INDEX

- Abnormalities, 132, 133
 Absolute truth, impossibility of, 92
 Acquired characteristics, 202
 Acquired secondary reflexes, 182
 Acquired variations, 103, 104
 Action, 268-274; as goal in education, 70; kinds and sources of, 52, 268 (automatic, 269; habitual, 272; ideo-motor, 274; impulsive, 271; instinctive, 270; reflex, 269; voluntary, 272)
 Admiration, as element in literature, 64
 Adolescence, emotional instincts of, 21; fatigue in, 131
 Æsthetic emotion, 52, 53, 74-76; elements in æsthetic enjoyment, 74, 75; necessity for early education in, 75, 76
 Afferent nerves, 124
 Agraphia, 186
 Alexia, 186
 Altruism, 52, 71-74
 Anabolic process, 59
 Animal activities, 8-31; instinctive actions, 8; interpretations of, 181; reflex actions, 8, 31
 Anticipatory feeling, 273
 Aphasia, 186
 Apperception, 2, 78-93, 177; and emotional life, 51, 90; as factor in concepts, 151; as fountain of conduct, 2, 78, 79; definition of, 88; essential elements of, 78, 82, 88; examples of, 79; factors determining strength and direction of, 88; in thinking, 165; physical conditions of, 91; power of habit in, 90; suggested apperception, 82-88; value of, 92
 Apperceptive process, 81
 Appreciation, 74
 Appreciative imagination, 192
 Art, psychology in, 303
 Asceticism, 57
 Association of ideas, 56, 62, 163-179; as factor in development of sentiments, 67; fundamental law of, 167; in æsthetic enjoyment, 74; in dreams, 176; in relation to memory, 195; secondary laws of (emotional interest, 173; logical relation, 174; repetition, 169; voluntary attention, 174)
 Association method, practical results of, 178-179; as applied to crime, 179; in detecting feigned insanity, 179; tests in, 178
 Atavism, 207
 Attention, as element in appreciation, 74; voluntary, 174
 Autosuggestion, 184
 Awe, 65
 Brain, 115, 186; convolutions in, 129; mass, 128, 129; motor centers in, 125; proportion of gray and white matter in, 129
 Breaking habits, conditions for, 41
 Causation, 95; universality of, as corner stone of evolution, 104
 Cell, 5, 114-121; activities of, 5; as unit of life, 5, 117; complexity of, 5, 118; growth of, 5, 121; shape and size of, 120

- Cell fibers, 117
 Central nervous system, 115
 Cerebellum, functions of, 115, 126
 Cerebrum, functions of, 126 ; importance of, 115-117
 Character, 26 ; definition of, 26 ; influences upon, 179
 Choleric, 61
 Collective mind, 259
 Collective survival, 100
 Color-blindness, 149
 Complementary colors, 149
 Complexity of organic world, 35
 Concepts, formation of, 223
 Conduct, causes of, 50-65
 Conscience, 268
 Conscious imitation, 24, 26
 Conscious memory, 181
 Consciousness, 54, 59, 63 ; change in, 134 ; effective states of, 54, 62 ; importance of, 33 ; relation of, to action, 33
 Constructive imagination, 192
 Contact, determination in, 139 ; need of, 72
 Content, importance of, 107, 318
 Contiguity, law of, 167
 Contrast, force of, 56
 Conventionality, 28
 Cortical area, 129
 Cranial nerves, 115
 Creative variation, 203
 Cretin, 113
 Crime, 34
 Criminal imagination, 194
 Crowds, credulity of, 260
 Culture, intellectual, 76
 Custom, 28

 Daydreams, 194
 Definition process, inadequacy of, 7
 Delusions, 255
 Despondency, 58
 Discontinuous variation, 104
 Disguised imitation, 27
 Dreams, 176-178 ; association in, 176 ; contents of, 177 ; relation of, to waking life, 177 ; symbolic nature of, 176 ; theories of, 176 ; wider scope of, 177
 Duty, feeling of, 50

 Ear-mindedness, 185
 Education, 69-77, 185, 212 ; æsthetic, 74 ; and feeling and emotion, 50, 69-77 ; and memory, 185 ; blunders in, 106 ; fundamental aim of, 70, 277 ; imitation as force in, 25 ; in music, 73 ; in relation to habit, 38, 69 ; in relation to heredity and environment, 212 ; of altruistic emotions, chief factors in, 71 ; of egoistic emotions, 70 ; of intellectual emotions, 76 ; supreme demand in, 222 ; will, freedom, and, 267-286
 Efferent nerves, 124
 Egoism, 52
 Emotional interest, law of, 173
 Emotional life, exaggerations of, 34 ; importance of, 66, 179
 Emotions, definition of, 48 ; abnormal emotional conditions, 55, 255 ; classification of, 51, 70 ; difference in intensity in, 60 ; education of, 69 ; education of æsthetic, 74 ; education of altruistic, 71 ; education of egoistic, 70 ; education of intellectual, 76 ; feeling side of, 62 ; habits in, 69 ; primary, 52
 Energy and feeling states, 59
 Environment, importance of, 69, 71, 75 ; place of, in education, 212 ; problems of, 199-213 ; relation of, to heredity, 211
 Equilibrium, 110
 Eternal energy, 2
 Ethical basis of life, 71
 Evolution and psychology, 93-113 ; as conceived in modern thought, 96 ; general statement, 94 ; in education, 95 ; limitations of, 110 ; natural selection, 98 ; sexual selection, 102 ; sources of advantages and

- variations necessary for survival (acquired variations, 103; rhythmic tendency to vary, 105; spontaneous variation, 104); survival of fittest (of present and of past time, 99); time and change, 110
 Evolution of language, 106; form and content, relative importance of, 107
 Evolution of mind, 111; arrested, 113
 Experience, necessity for, 72, 84
 Faculty psychology, teachings of, 3, 49
 Fatigue and habit, 45; importance of, 56, 59, 91, 130
 Fear instinct, 18; extent of, 18; in relation to other instincts, 18; value of, for protection, 19
 Feeling, and literature, 64; and intellect, 49
 Feeling-life, 61, 73
 Feelings, 2, 46-77; and education, 50, 69; as fountain of conduct, 2, 46; chief characteristics of (pleasure and pain, 53); classification of, 51; counteracting, 61; definition of, 47; development of, into sentiments, 62; difference in intensity of, 60; importance of, 48; physiological basis of, 67; qualities of, 57
 Finality as detriment, 77
 Forces of mind, relations of, 30
 Form, 107
 Fountains of conduct, 1-93, 113; as interpreters of human life, 1; chief object of, 78; necessity for wide knowledge of, 4
 Free association, 176
 Freedom, feeling of, 279; ways of conceiving, 282
 Fundamental instinct, 4
 Ganglion cell, 118
 Genius, 225
 Germ cells, activities of, 5
 Gesture-sign language, basis of, 107, 109
 Grammar, laws of, 305
 Granules, 117
 Grief, luxury of, 58
 Growth and change, 42
 Habit, 2, 30-45, 56, 71; and apperception, 90; and sensation, 161; as factor in development of sentiments, 67; as fountain of human conduct, 2, 31, 36, 45, 61; breaking, 41-45; definition of, 34; effects of, 44; in nervous system, 37, 133, 167; inherited habits, 34; power of, in education, 38-41, 69; reflex action as basis of, 31; some theories of, 34; strength of, 38, 44; wide view of, 35, 40
 Habits, antagonism among, 39
 Hearing, sensations of, 136, 146; characteristics of sound, 147
 Heredity, and reasoning, 218; force of, 182; individual variations in, 209; manner of inheritance, 208; meaning of, 201; place of education with regard to, 212; problems of, 60, 182, 199-213; relation of, to environment, 211; source of (characteristics of humanity, 205; individual characteristics due to variations, 207; inheritance from parents, 206; latent potentialities, 207; race inheritance, 205)
 Higher powers of man, 2
 Human conflict, 325-341; inconsistency and contradiction of, 330; needed reforms in our moral education, 333; pursuit of happiness is end of action, 327; spirit of aimless restlessness, 329; the unified soul is the happy one, 328
 Human instincts, 14-20
 Hypnoidization, 235
 Hypnosis, popular errors concerning, 240; production of, 238

Hypnotic phenomena, history of, 236

Hypnotic suggestion, 236

Idealistic imagination, 192

Ideals, 68

Ideo-motor action, 274

Imagination, 180-198 ; and memory, 188 ; as source of crime and hallucination, 34 ; dangers of extremes in, 34 ; education of, 194 ; function and development of, 180 ; idealizing power of, 74 ; in animals, 180 ; in relation to anticipatory images, 183 ; suggestions concerning, 196 ; values and dangers in, 192

Imitation, 2, 23-30 ; and habit, 26, 30 ; and initiative, relation of, 26 ; and intelligence, 26 ; as an aid to other instincts, 23 ; as factor in animal training, 25 ; as factor in training feeble-minded, 25 ; as fountain of conduct, 2, 23 ; conscious, 24, 26 ; definition of, 28 ; extent and scope of, 26 ; importance of, as an instinct, 23-30 ; trend of, 27 ; unconscious power of, 24

Impressions, meaning aspect of, 79

Individual survival, 100

Inhibition, 126

Inner life, 76

Instinct, 2, 4, 7-23, 29, 51, 52 ; abnormal forms of, 22 ; and apperception, 88 ; and intelligence, 13 ; as a fountain of conduct, 2, 7 ; complexity of, 112 ; definition of, 20-24 ; human (as basis of human activities, 14 ; as part of fountains of conduct, 20 ; fear instinct, 18, 132 ; parental instinct, 17 ; play instinct, 20 ; power of, 14 ; property instinct, 19 ; sexual instinct, 15-17 ; social instinct, 20) ; imitative instinct, 23 ; method of inheritance of, 29 ; migratory,

8 ; power of, 95 ; practical applications of, 7 ; reproductive, 12 ; social, 10 ; will to live as fundamental instinct, 4

Instinctive activity, 10

Instinctive impulses, 20

Intellect, process of, 8, 69

Intellectual emotion, 52

Intelligence, basis of, 128

Intelligence in animals, 180

Intensity, 147 ; of feeling, 54, 60

Inetrest, 78, 82, 89, 130, 173 ; and association of ideas, 173 ; as chief element in apperception, 78, 89 (unconscious influence of, 82, 89) ; intensity of, 130

Katabolic process, 59

Kinesthetic, 143

Language, evolution of, 106-110

Language and thought discipline, 227

Life, 1-5, 60 ; conditions of, 4 ; equipment of, 5 ; ethical basis of, 71 ; origin of, 1 ; past, influence of, 2 ; problems of, 1 ; speculations concerning, 3 ; unit of, 5

Literature, aim of, 64 ; as a means of educating altruistic life, 72 ; atmosphere of, 319 ; characteristics of, 66 ; first necessity for production or appreciation of, 311 ; psychology in, 303-324 ; reading into, what is not there, 317 ; simple psychic elements in, 307 ; standard for judging, 320 ; symbolic nature of, 313

Localization of function, 127

Logical relation, 174

Love instinct, 51, 53, 71

Lumbricus, 5

Magic and spiritualism, 287-302 ; explanations of, 293 ; high points in history of, 291 ; historic development of, 287 ; necessity for knowledge concerning, 288 ; spiritualistic phenomena, 297

- Medulla oblongata*, functions of, 115, 126
- Melancholy, 58, 61
- Memory, 180-198; and conduct, 183; and court testimony, 197; and imagination, 188; education of, 185, 194; function and development of, 180; in animals (conscious memory, 181; memory images, 180, 183; theories of, 180); physical basis of, 186; suggestions concerning, 196; varieties of, 182-185 (images of the different senses, 62, 184; organic, 182; recognition and feeling of familiarity, 183; semiconscious memory, 182)
- Memory process, complete, 185
- Mental assimilation, 90
- Mental healing, 249
- Mental images, 62
- Mental life outside consciousness, 243
- Mental prepossession, 161
- Migratory instinct, 8
- Mind, evolution of, 111
- Moral education, reforms of, 333
- Moral emotion, 52
- Morals, dependence on feeling-life, 73
- Motor nerves, 124
- Muscular discrimination, 136
- Muscular sense, importance of, 142
- Music and art, misapplication of, 73; power of, 72, 109; psychology in, 147, 322
- Music-imagination, 192
- Nais*, 5
- Nascent stages, 76
- Natural selection, 98
- Nerve cell, 118
- Nervous system, abnormalities in, 132; association in, 167; cerebrum, importance of, 116; composition of (cell as unit of nervous system), 117; coöperation in actions of, 91; divisions of (central and peripheral), 115; education of, 128; fatigue as a danger signal, 130; function and education of, 114-133; functions of the different parts, 124; growth of, 121; habit in, 133; importance of knowledge on this subject, 131; modifications of, 61, 63, 111; organization of, 60; relation of physical and mental defects of, 127
- Nervous tissue, sensitiveness of, 37, 63
- Neurone, 118, 168
- Neutral states, 54, 48
- Night-blindness, 151
- Noise, 147
- Noninstinctive adjustments, 182
- Number forms, 157, 190
- Oneness, sensation of, 152
- Organic memory, definition of, 182
- Organic sensations, 137
- Pain, physical basis of, 48, 53-62, 142
- Paramnesia, 254
- Parental instinct, 17; as extension of sexual instinct, 17; in relation to will power, 17
- Partial memory, 184
- Passive imitativeness, 27
- Pathological imagination, 194
- Perception and sensation, 135, 155-159
- Peripheral, 115
- Personal interest, 50
- Personality, 166
- Phlegmatic, 61
- Physical conditions, influence of, 91
- Pitch, 147
- Plasticity due to intelligence, 18
- Plasticity of organic world, 35
- Pleasurable pain, 57
- Pleasure, physical basis of, 48, 53-62
- Political education and school, 262

- Posthypnotic suggestion, 245
 Potentiality, 187
 Predisposition of response, 35, 37
 Preformed mechanism, 131
 Prepossession, 87
 Pressure, sensitiveness to, 140
 Primary passions, 51
 Property instinct, 19
 Psychic activities in man, 7
 Psychoanalysis, 177
 Psychological paradox, 57
 Psychology, in literature, music, and art (first necessity for production or appreciation of literature and art, 311; inadequacy of present system, 304; laws of grammar, literature, and art, 305; music and art, 322; psychic atmosphere about literature and art, 319; reading into literature what is not there, 317; simple psychic elements in literature, 307; standard for judging literature and art, 320; symbolic nature of characters in literature, 313); normal and abnormal, 253; relation of, to evolution, 94-113
 Punishment, old ideas of, 333
 Quality, 147; of sensations, 155-159
 Rational element in man, 49
 Reaction time, family similarity in, 179; variations in, 151, 153, 178
 Reason, 8, 62; inaccuracy in, 218
 Reflex action, 31, 125, 134, 182; acquired secondary reflexes, 182; as seen in animals, 32; conscious, 32; definition of, 32; in relation to consciousness, 33; in relation to habit, 34; unconscious, 32
 Religious emotion, 52
 Reminiscent imagery, 193
 Repetition, importance of, 37; law of, 169
 Reproduction, characteristics of, 12; instinct of, 12, 15; perversions of, 12
 Reverence, 65
 Rhythm, 323
 Rhythmic tendency to vary, 105
 Sanguine, 61
 Science, problems of, 131
 Self-confidence, 44
 Self-deception, 42
 Selfishness, 52
 Self-originating imitation, 27
 Self-preservation, 6, 70
 Self-sacrifice, 71
 Semiconscious memory, 182
 Sensation, 54, 134-162; in relation to perception, 135; quality and intensity of, 155; sensations arising from the skin (discrimination of contacts, 139; hairs as organs of touch, 139; sensitiveness to pressure, 140); significance of, 159; stimulus and nerve action, 134
 Senses, 141-155; adaptation to stimuli, 136; as basis of instincts, 134
 Sensibility to response, 61
 Sensory nerves, 124
 Sentiments, 52-68; as factors in apperception, 90; as preventives of progress, 68; habit as fundamental in education of, 69; idealistic quality of, 68; nature of, 52, 66; power of, 55
 Sexual instinct in human life, 15; importance of, 16
 Sexual selection, 12, 102
 Sight, sensations of, 136, 148
 Sitaris, 10
 Skin sensations, 139
 Smell, extent of sensations of, 136, 144, 145
 Social instinct, 10, 11; as seen among animals, 10
 Social-mind, 258
 Social psychology, 257-266; conclusions, 264; importance of,

- 257 ; school and political education, 262 ; social mind, meaning of, 258 ; suggestibility and credulity of crowds, 260
- Soul, and feeling-life, 62, 73 ; definition of, 3 ; freedom of, 311 ; serenity of, 44, 77 ; the unconscious in, 177, 179
- Sound, 147
- Special memories, 187
- Spectrum, 148
- Sphex, 10
- Spinal cord, 115, 125
- Spirit of age, 28
- Spiritualism, 296-302 ; historic development of, 287 ; necessity for knowledge concerning, 288 ; relation of, to magic, 289 ; some spiritualistic phenomena, 297
- Spontaneous variation, 104, 207
- Stimulus, effect of, 61, 63, 134, 177 ; intensity of, 141
- Stovaine, effect of, 55
- Stream of consciousness, 175
- Stream of thought, 165, 175
- Struggle for existence, 3, 98, 99 ; as a fundamental in evolution, 4, 98
- Subjective sensations, 155
- Suggestion, 60, 87, 144, 161 ; force of, 161
- Suggestion and mental healing, 232-256 ; degrees of suggestibility, 233 ; hidden powers of men, 247 ; history of hypnotic phenomena, 236 ; how hypnosis is produced, 238 ; mental healing, 249 ; mental life outside consciousness, 243 ; mob spirit, 235 ; normal and abnormal psychology, 253 ; phenomena of hypnotic suggestion, 236 ; popular errors concerning, 240
- Superorganic evolution, 259
- Survival of fittest, 98 ; individual and collective survival, 100
- Sweet sadness, 57
- Sympathetic imagination, 193
- Sympathy, 71
- Synapses, action of, 168
- Taste, 136, 144
- Taste and smell, 144
- Temperament, 61
- Temperature sense, 136
- Thinking process, degrees of thinking, 214 (intuitive reasoning, 215 ; short-circuited logic, 215) ; development of, 214-231 ; education of, 222 ; formation of concepts, 223 ; genius, the star of hope, 225 ; inaccurate reasoning, causes of, 218 (absence of adequate material, 219 ; defective education and training, 220 ; habit and apperception, 219 ; heredity, 218 ; strong emotion, 220) ; language and thought discipline, 227
- Thought, and progress, 217 ; rapidity of, 165
- Touch, education of, 136, 143
- Transferred feelings, 67
- Transferred perception, 156
- Truth, relativity of, 68, 92
- Unconscious imitation, 24
- Unconscious infection, 179
- Unconsciousness, 79
- Undertone emotion, 173
- Unity in variety, 74
- Variation, by mutation, 104 ; causes of, 104
- Vision, world of, 151
- Visual images, 189
- Visual-mindedness, 184
- Voluntary attention, 174
- Weber's law, 140-142, 155
- Will, 242
- Will, freedom, and education, 267-286 ; biological and evolutionary investigations of, 268 ; definition of will, 267 ; deliberation, definition of, 275 ; education and freedom (limitations of freedom, 276 ; practical aim of education, 277) ; evasions of the problem, 278 ; feeling of freedom, 279 ; kinds and sources of

human action, 268 ; moral aspect, 284 ; volition as director of thoughts and feelings, 273 ; ways of conceiving freedom, 287

Will or desire to live, 2-6, 29 ; as a fountain of conduct, 2, 4 ; as background of life, 4 ; as found

in animal life, 3-6 ; as fundamental instinct, 4 ; as related to other instincts, 4 ; extent and intensity of, 5 ; for the individual, 6 ; for the species, 6 ; strength of, 5 ; struggle for life, 3

JUN 23 1913

Deacidified using the Bookkeeper process.
Neutralizing agent: Magnesium Oxide
Treatment Date: Oct. 2004

PreservationTechnologies

A WORLD LEADER IN PAPER PRESERVATION

111 Thomson Park Drive
Cranberry Township, PA 16066
(724) 779-2111

LIBRARY OF CONGRESS



0 013 310 077 5

